

# **Western Australian Year Book 1973**

ISSUED BY THE COMMONWEALTH BUREAU OF CENSUS AND STATISTICS



This page was added on 11 January 2013 to include the Disclaimer below.

No other amendments were made to this product.

#### **DISCLAIMER**

Users are warned that this historic issue of this publication series may contain language or views which, reflecting the authors' attitudes or that of the period in which the item was written, may be considered to be inappropriate or offensive today.

---

---

# The WESTERN AUSTRALIAN YEAR BOOK

No. 12—1973

It gives a comprehensive view of the  
State of Western Australia  
and its development.

*Separate chapters are devoted to:*

A Historical Survey  
Physical Features, Climate,  
Flora & Fauna  
Constitution & Government  
Population & Vital Statistics  
Social Conditions  
Finance (public & private)  
Land Tenure & Settlement,  
Water Supply & Sewerage  
Production (primary & secondary)  
Trade, Transport &  
Communication  
Industrial Conditions,  
Employment & Prices.

*Additional features are:*

A statistical summary extending, in some cases, back to 1829  
A 35" x 24" map in colour of Western Australia  
Special articles on various topics.

*Recommended price \$3*

---

---

*With the Compliments  
of the  
Deputy Commonwealth Statistician  
and  
Government Statistician*

*Perth,  
Western Australia*

29 AUG 1973



## CITY OF PERTH

Aerial View looking South-West

Perth, the capital city of Western Australia, is situated on the right bank of the Swan River about twelve miles upstream from the Port of Fremantle. Founded on 12 August 1829, Perth was constituted a City on 23 September 1856 when it became the seat of a Bishop. The status of Mayor of the City was raised to that of Lord Mayor in 1929 on the centenary of its foundation.

Perth is the venue for the 45th Congress of the Australian and New Zealand Association for the Advancement of Science commencing on 13 August 1973, the first occasion the Congress has been held in Perth since 1959.

*Photograph by Aerial Photographs Pty. Ltd.*



# WESTERN AUSTRALIAN YEAR BOOK

No. 12 - 1973

W. M. BARTLETT

DEPUTY COMMONWEALTH STATISTICIAN AND GOVERNMENT STATISTICIAN

COMMONWEALTH BUREAU OF CENSUS AND STATISTICS

WESTERN AUSTRALIAN OFFICE

*Registered at the General Post Office, Perth  
for transmission through the post  
as a book*

Printed in Australia by WILLIAM C. BROWN, Government Printer, Western Australia

## PREFACE

This is the twelfth issue of the new series of the *Western Australian Year Book*. The old series, originally published for the year 1886 and discontinued in 1905, developed from the Blue Books of the Colonial Office, London, which contained the earlier statistical records of Western Australia.

The Year Book provides a general description of Western Australia and includes authoritative information on almost every aspect of life in the State. Together with chapters on social and economic progress, the Year Book includes information on government, geography and climate, vegetation and fauna. Considerable use is made of statistical tables to supplement the descriptive text and where appropriate, diagrams and graphs are also included for illustrative purposes. Each chapter contains the latest information available at the time of manuscript preparation.

Because of the time required for editing and printing the Year Book, later data on a particular topic will often be available in mimeographed publications or on request to the appropriate section of this Office. More detailed statistics on matters treated generally in the Year Book are available in the several publications comprising *Statistics of Western Australia*. The reader is referred to the complete list of publications of the Western Australian Office which is provided at the back of this Book.

The reader's attention is drawn to the information service and library facilities provided by this Office, where all the publications of the Bureau of Census and Statistics are available for reference. Businessmen, manufacturers, primary producers, government authorities, students and the public generally are invited to make full use of these services.

I express my appreciation to the many government officials and others for their part in the preparation of material for this Year Book and to those organisations which made available blocks or photographs used in the illustrations. Special thanks are due to the Editor of Publications (Mr J. E. Gowdy B.Ec. (Hons.)), other officers of the Bureau and the Government Printer and his staff for their contribution to the Year Book project.

W. M. BARTLETT  
Deputy Commonwealth Statistician  
and  
Government Statistician

1 June 1973

# CONTENTS

CHAPTER	SUBJECT	PAGE
	LIST OF PLATES, GRAPHS AND MAPS ....	v
	SYNOPSIS ....	vi
I	DISCOVERY, COLONISATION AND DEVELOPMENT ....	1
II	PHYSICAL FEATURES, CLIMATE, FLORA AND FAUNA ....	16
III	CONSTITUTION AND GOVERNMENT ....	100
IV	POPULATION AND VITAL STATISTICS ....	122
V	SOCIAL CONDITIONS ....	161
VI	FINANCE ....	265
VII	LAND TENURE AND SETTLEMENT, WATER SUPPLY AND SEWERAGE ....	310
VIII	PRODUCTION ....	329
IX	TRADE, TRANSPORT AND COMMUNICATION ....	412
X	INDUSTRIAL CONDITIONS, EMPLOYMENT AND PRICES ....	475
	STATISTICAL SUMMARY FROM 1829 ....	518
	WESTERN AUSTRALIA IN RELATION TO AUSTRALIA ....	539
	APPENDIX ....	540
	NOTE ON STATISTICAL DIVISIONS ....	574
	LIST OF STATISTICAL DIVISIONS AND LOCAL GOVERNMENT AREAS ....	575
	INDEX ....	577
	LIST OF STATISTICAL PUBLICATIONS ....	597
	GENERAL MAP OF WESTERN AUSTRALIA ....	<i>inside back cover</i>

# LIST OF PLATES, GRAPHS AND MAPS

	Page
<b>Plates</b>	
City of Perth—Aerial View looking South-West	Frontispiece
1 The <i>Millbillillie</i> Meteorite	between 32 and 33
2 Essa 8 Satellite Photograph	"
3 Infra-red Radiometer Picture	"
4 Crown of Thorns Starfish Research in Western Australia	"
5 Marsupial Mouse	between 224 and 225
6 Quokkas at Rottnest Island	"
7 Talc Mine near Three Springs	"
8 Solar Salt Industry, Port Hedland	"
9 Sperm Whale, Frenchman Bay Whaling Station near Albany	"
10 Tractor Assembly Line at Welshpool Factory near Perth	"
11 Aerial View of Experimental Fields, Kimberley Research Station	"
12 Aerial View of the Port of Esperance	"
13 Golden-backed Honeyeater	between 416 and 417
14 Cattle Watering Point, Mount House Pastoral Station in West Kimberley	"
15 Cabbage Palms in the Kimberley Division	"
16 Open-cut Iron Ore Mine on Mount Whaleback in the Pilbara Division	"
17 Abrolhos Islands	"
18 Karri Logs being Loaded on to a Truck over Landing Ramp at Bush Landing	"
19 Karri Log on Initial Landing Carriage at a Pemberton Mill	"
20 Cockburn Sound Causeway	"
21 'Beast of Burden' Cave Formation	"
22 Lesmurdie Falls National Park	"
23 Wittenoom Gorge, Hamersley Range in the Pilbara Division	"
<b>Graphs</b>	
Satellite Temperature Data Scan Line	54
Age Distribution of the Population—Census, 30 June 1971	126
Births, Deaths and Marriages, 1880 to 1971	143
Rates of Birth, Death and Marriage, 1880 to 1971	154
Primary and Secondary Schools—Pupils, 1900 to 1971	163
New Houses and Flats Completed, 1962-63 to 1971-72	229
National Welfare Fund—Expenditure, 1967-68 to 1971-72	245
Bank Deposits and Advances, 1962-63 to 1971-72	293
Wool and Wheat—Annual Production, 1901 to 1970-71	347
Wool and Wheat Production—Annual Values, 1901 to 1970-71	362
Imports and Exports, 1961-62 to 1970-71	426
Motor Vehicles on Register, 1945 to 1971	454
State Basic Wage—Males and Females, 1926 to 1972	484
Industry of Employed Persons—Census, 30 June 1971	502
<b>Maps</b>	
Geological Map	20
Sedimentary Basins	24
Wettest Six-Monthly Period of Year	41
Rainfall	42
Evaporation	48
Agricultural Areas—Growing Season	50
Natural Regions	97
Comprehensive Agricultural Areas Water Supply Scheme	318
Irrigation Districts in South-West Division	322
State Forests	377

# SYNOPSIS

## CHAPTER I—DISCOVERY, COLONISATION AND DEVELOPMENT

	Page		Page
Discoveries and History up to 1829....	1	Consolidation 1901-1929 ....	9
The Swan River Colony ....	2	Depression and War ....	11
The Convict Era ....	5	A State on the March ....	13
The Gold Rushes of the 'Nineties ....	7		

## CHAPTER II—PHYSICAL FEATURES, CLIMATE, FLORA AND FAUNA

### PART 1—PHYSICAL FEATURES AND GEOLOGY

General ....	16
Physical Features—	
The Great Plateau ....	17
The Coastal Plains ....	19
Geology—	
The Precambrian Basement ....	19
The Sedimentary Basins....	23
The Superficial Deposits ....	29
Conclusion ....	31
The Mineral Deposits ....	31
Current Geological Investigations ....	31
Seismicity of Western Australia ....	32
Geological Events and Mineral Deposits ....	33
Western Australian Meteorites ....	34
Further Sources of Information ....	35

### PART 2—CLIMATE AND METEOROLOGY

General ....	36
Pressure Systems ....	36
Rainfall ....	37
Temperature ....	43
Thunderstorms ....	47
Evaporation ....	49
Growing Season ....	49
Metropolitan Climate ....	49
Snow ....	51
Interstate Comparisons ....	51
Satellites and Meteorology ....	51
Meteorological Satellite Data ....	52
Interpretation of Satellite Data ....	53

### PART 3—VEGETATION

(With an Account of the Family Proteaceae)

General ....	55
The Family Proteaceae ....	57
Vegetation Provinces—	
Climatic Characteristics ....	59
Vegetative Characteristics ....	60

### PART 3—VEGETATION—continued

#### Vegetation Formations—

The Forest Formations of the South-West	61
Woodland Formations ....	61
Shrub Formations ....	62
Savannah and Steppe Formations ....	62

### PART 4—FAUNA

#### Distribution—

Terrestrial Vertebrates ....	63
Coastal Marine Fauna ....	65
Fauna of Inland Waters ....	65

#### Composition of the Fauna—

Mammals ....	66
Birds ....	70
Reptiles ....	74
Amphibia ....	75
Freshwater Fishes ....	75
Marine Fishes ....	76
Echinodermata ....	78
Mollusca ....	79
Corals ....	80
Crustacea ....	80
Spiders ....	81
Insects ....	81
Conservation of the Fauna ....	81
Further Sources of Information ....	84

### PART 5—ENTOMOLOGY

(With Particular Reference to Agriculture)

General ....	87
Class Insecta (Insects)....	87
Class Arachnida (Spiders, Mites, Ticks, etc.)	93
Pest Control without Insecticides ....	93
Further Sources of Information ....	95

### PART 6—NATURAL REGIONS 97

## CHAPTER III—CONSTITUTION AND GOVERNMENT

General ....	100	Legislation during 1971 ....	110
Outline of Constitutional Development ....	100	Government Administration ....	112
Vice-Regal Representation ....	101	History of the Police Department ....	113
The Federal Parliament ....	101	The Judicature ....	116
The Senate ....	102	Overseas Representation in Western Australia	116
The House of Representatives ....	102	State Representation Overseas and in other	
The State Parliament ....	103	States ....	117
The Legislative Council ....	105	The Local Government System—	
The Legislative Assembly ....	107	General ....	117
Elections, Electors on Roll and Votes Re-		Local Government Districts ....	118
corded—		Constitution and Electoral Provisions	119
The Federal Parliament ....	108	Functions of Local Authorities ....	119
The State Parliament ....	110	Financial Provisions ....	120

## CHAPTER IV—POPULATION AND VITAL STATISTICS

	<i>Page</i>		<i>Page</i>
<b>PART 1—POPULATION</b>		<b>PART 2—BIRTHS, DEATHS AND MARRIAGES</b>	
<b>General</b> ....	122	<b>The Registration System</b> ....	140
<b>The Census—</b>		<b>Births—</b>	
General ....	122	Numbers ....	141
Scope ....	123	Birth Rates ....	144
Aborigines ....	123	Gross and Net Reproduction Rates ....	145
Recorded Population ....	123	<b>Deaths—</b>	
Masculinity ....	124	Numbers ....	146
Age Composition....	124	Death Rates ....	146
Birthplace ....	127	Causes of Death ....	147
Nationality ....	127	Infant Mortality ....	150
Religion ....	128	Causes of Infant Deaths ....	151
Marital Status ....	128	Stillbirths ....	152
<b>Intercensal Increases</b> ....	129	Age-specific Death Rates ....	152
<b>Geographical Distribution</b> ....	130	<b>Australian Life Tables</b> ....	155
<b>Population Density</b> ....	134	<b>Marriages—</b>	
<b>Aboriginal Population</b> ....	135	Numbers ....	156
<b>Estimates of Population</b> ....	137	Age at Marriage....	156
		Religious and Civil Marriages ....	158
		Marriage Rates ....	158
		<b>Divorce</b> ....	159

## CHAPTER V—SOCIAL CONDITIONS

<b>PART 1—EDUCATION</b>	
<b>Primary, Secondary and Technical Education—</b>	
General ....	161
Government Financial Assistance ....	161
School Attendance ....	162
School Enrolments ....	162
<b>The Education Department—</b>	
General ....	165
Primary and Secondary Schools ....	165
Primary and Secondary Curriculum ....	167
Radio, Television and Film Aids ....	167
Student Counselling and Vocational Guidance ....	167
Special Schools and Classes ....	167
Correspondence Tuition ....	167
Education of Aborigines ....	168
Agricultural Education ....	168
Technical Education ....	168
Teacher Education ....	170
<b>Non-Government Schools</b> ....	171
<b>The Western Australian Institute of Technology</b> ....	172
School of Mines ....	173
Muresk Agricultural College ....	173
Finance ....	174
Teachers, Students and Awards Conferred ....	174
<b>The University of Western Australia—</b>	
General ....	175
Matriculation Requirements ....	176
Degrees and Diplomas ....	176
University Government ....	177
Student Fees and Scholarships....	177
Finance ....	178
Teachers, Students, Degrees Conferred	179
Tuition ....	179
Colleges and Hall of Residence ....	180
Public Examinations Board ....	180
Extension Service ....	180
<b>Murdoch University</b> ....	180
<b>State Government Expenditure on Education</b> ....	181
<b>PART 1—EDUCATION—continued</b>	
<b>Commonwealth Financial Assistance for Education—</b>	
Department of Education ....	181
Scholarships and Awards ....	182
Universities ....	182
Colleges of Advanced Education ....	183
Teachers Colleges ....	183
Pre-school Teachers Colleges ....	183
Science Laboratories and Equipment ....	183
School Libraries ....	183
Technical Training ....	183
Recurrent Expenditure of Non-government Schools ....	183
Research ....	184
Aboriginal Advancement ....	184
Capital Expenditure on Government Schools ....	184
Financial Summary ....	184
<b>The Western Australian Tertiary Education Commission</b> ....	185
<b>PART 2—ARTS, SCIENCE AND RECREATION</b>	
<b>Public Libraries—</b>	
The Library Board of Western Australia	186
State Reference Library ....	187
Central Music Library ....	187
Local Public Libraries ....	187
State Bibliographical Centre ....	187
<b>The Western Australian Museum</b> ....	188
<b>The Western Australian Art Gallery</b> ....	189
<b>Scientific Institutions—</b>	
State Government Observatory ....	190
State Government Chemical Laboratories	191
The Institute of Agriculture, University of Western Australia ....	192
Commonwealth Scientific and Industrial Research Organization ....	193
<b>Botanic Garden</b> ....	196
<b>Public Parks and Reserves</b> ....	197

# CHAPTER V—SOCIAL CONDITIONS—continued

	Page		Page
<b>PART 3—HEALTH SERVICES, HOSPITALS, AND CARE OF THE AGED AND DISABLED</b>		<b>PART 5—SOCIAL BENEFITS, PENSIONS AND WELFARE SERVICES—continued</b>	
<b>Health Services—</b>		<b>Social Services Benefits—continued</b>	
Commonwealth Government Services ....	200	Unemployment, Sickness and Special Benefits ....	235
State Government Services ....	200	Maternity Allowances ....	236
Infectious Diseases ....	201	Child Endowment ....	236
Special Health Services for Children ....	202	Reciprocal Arrangements with other Countries ....	237
Royal Flying Doctor Service of Australia	203	Summary of Rates, 1969 to 1973 ....	237
<b>Hospitals other than Mental Hospitals—</b>		<b>War and Service Pensions—</b>	
Commonwealth Government Hospitals	203	War Pensions ....	238
State Government and Government- assisted Hospitals ....	204	Service Pensions ....	239
Private Hospitals and Nursing Homes	205	Summary of Rates, 1969 to 1973 ....	240
<b>Mental Health Services</b> ....	205	<b>National Health Services—</b>	
<b>Care of Aged and Disabled Persons—</b>		Hospital and Nursing Home Benefits....	241
Aged Persons Homes Act ....	206	Handicapped Children's Benefit ....	242
Aged Persons Hostels Act ....	207	Medical Benefits ....	242
Delivered Meals Subsidy Act ....	207	Subsidised Health Insurance ....	243
Sheltered Employment (Assistance) Act	208	Pharmaceutical Benefits ....	244
Sheltered Employment Allowances ....	208	Free Milk for School Children ....	244
Handicapped Children (Assistance) Act	209	Tuberculosis Campaign ....	244
Other Commonwealth Assistance ....	210	Miscellaneous Health Services ....	246
		Summary of Rates, 1969 to 1973 ....	246
<b>PART 4—HOUSING AND BUILDING</b>		<b>Department for Community Welfare</b> ....	246
<b>Housing and the Census—</b>		<b>State Relief Payments</b> ....	247
General ....	211	<b>Child Welfare—</b>	
Dwellings—		General ....	248
Censuses from 1901 ....	212	Expenditure ....	249
Class of Dwelling ....	212	Supervision of Children ....	249
Number of Inmates ....	213	Maintenance of Children ....	249
Number of Rooms ....	214	Day Care Centres ....	250
Material of Outer Walls ....	215	Adoption of Children ....	250
Nature of Occupancy ....	215	Institutions ....	250
Weekly Rents ....	216	Employment of Children ....	250
Facilities ....	217	<b>Summary of Relief and Welfare Payments</b> ....	251
Motor Vehicles ....	217		
Unoccupied Dwellings ....	218		
Geographical Distribution ....	218		
<b>Government and Government-sponsored Housing—</b>		<b>PART 6—LAW, ORDER AND PUBLIC SAFETY</b>	
The State Housing Commission ....	220	<b>The Legal Profession</b> ....	252
Government Employees' Housing Au- thority ....	224	<b>The Crown Law Department</b> ....	252
War Service Homes ....	224	<b>Parliamentary Commissioner for Administra- tive Investigations</b> ....	252
State Housing Death Benefit Scheme Act	225	<b>Law Courts—</b>	
Housing Loan Guarantee Act ....	225	High Court of Australia ....	253
Housing Loans Insurance Scheme ....	225	Supreme Court of Western Australia	253
Homes Savings Grants ....	226	The District Court of Western Australia	253
<b>Control of Building</b> ....	226	Third Party Claims Tribunal ....	254
<b>Building Operations—</b>		Magistrates' and Coroners' Courts ....	254
General ....	227	<b>Licensing Court of Western Australia</b> ....	254
Employment in Building ....	230	<b>Court Proceedings</b> ....	255
<b>Dwellings Completed in Australia</b> ....	231	<b>Convictions in Courts</b> ....	256
		<b>Liquor Licences</b> ....	258
<b>PART 5—SOCIAL BENEFITS, PENSIONS AND WELFARE SERVICES</b>		<b>Police</b> ....	259
<b>General</b> ....	232	<b>Prisons</b> ....	260
<b>Social Services Benefits—</b>		<b>Probation and Parole Service</b> ....	261
Age and Invalid Pensions ....	233	<b>Public Safety—</b>	
Widows' Pensions ....	234	National Safety Council of Western Australia ....	262
		West Australian Fire Brigades Board ....	263
		Bush Fires Board ....	264

## CHAPTER VI—FINANCE

	<i>Page</i>		<i>Page</i>
<b>PART 1—PUBLIC FINANCE</b>		<b>PART 2—PRIVATE FINANCE—<i>continued</i></b>	
<b>Commonwealth-State Financial Relations—</b>		<b>Banking—</b>	
The Financial Agreement of 1927 ....	265	Commonwealth Banking Institutions ....	291
The Australian Loan Council ....	265	The Rural and Industries Bank ....	291
Grants to the States ....	266	Trading Banks ....	291
Other Financial Assistance ....	266	Savings Banks ....	294
National Welfare Fund ....	267	Bank Interest Rates ....	295
<b>Commonwealth and State Taxation—</b>		<b>Insurance—</b>	
Commonwealth Taxation ....	269	General Insurance ....	296
State Taxation ....	271	Life Insurance ....	297
<b>State Government Finance—</b>		Motor Vehicle Third Party Insurance ....	298
Consolidated Revenue Fund ....	275	Health Insurance Organisations ....	299
General Loan Fund ....	279	<b>Building Societies ....</b>	300
Public Debt ....	281	<b>Instalment Credit for Retail Sales ....</b>	301
Trust Funds ....	282	<b>Finance Companies ....</b>	302
<b>Local Government Finance—</b>		<b>Bankruptcy ....</b>	304
General Revenue ....	284	<b>Public Trust Office ....</b>	305
General Expenditure ....	285	<b>Office of Titles ....</b>	305
Loan Transactions ....	286	<b>Companies Registration Office ....</b>	306
<b>Pension and Superannuation Schemes ....</b>	287	<b>The Stock Exchange of Perth ....</b>	306
<b>PART 2—PRIVATE FINANCE</b>		<b>Lotteries and Betting ....</b>	307
Currency ....	290		
Rates of Exchange ....	290		

## CHAPTER VII—LAND TENURE AND SETTLEMENT, WATER SUPPLY AND SEWERAGE

<b>PART 1—LAND TENURE AND SETTLEMENT</b>		<b>PART 2—WATER SUPPLY AND SEWERAGE—<i>continued</i></b>	
<b>Legislation and Administration ....</b>	310	<b>Country Water Supplies—</b>	
<b>Methods of Land Alienation ....</b>	310	Modified Comprehensive Scheme ....	317
<b>Methods of Leasing—</b>		Goldfields and Agricultural Water Supply ....	317
Department of Lands and Surveys ....	311	Great Southern Towns Water Supply ....	319
Department of Mines ....	311	Supplies to other Country Towns ....	320
Forests Department ....	311	<b>Underground Water ....</b>	321
<b>Land Classification ....</b>	311	<b>South-West Irrigation Schemes ....</b>	321
<b>Occupation of Land ....</b>	312	<b>Northern Irrigation Schemes ....</b>	323
<b>Government Land Settlement Schemes ....</b>	314	<b>Water Resources Investigation and Measurement ....</b>	326
<b>PART 2—WATER SUPPLY AND SEWERAGE</b>		<b>Sewerage Schemes—</b>	
<b>General ....</b>	315	Metropolitan ....	327
<b>Metropolitan Water Supply ....</b>	316	Country Towns ....	327

## CHAPTER VIII—PRODUCTION

<b>General ....</b>	329	<b>PART 1—PRIMARY PRODUCTION—<i>cont.</i></b>	
<b>Geographical Distribution of Industry ....</b>	330	<b>Agriculture—<i>continued</i></b>	
<b>PART 1—PRIMARY PRODUCTION</b>		Other Grain and Pulse Crops ....	348
<b>Land Utilisation on Rural Holdings ....</b>	331	Hay ....	348
<b>Machinery on Rural Holdings ....</b>	333	Pastures ....	348
<b>Classification of Rural Holdings ....</b>	334	Green Feed ....	349
<b>Value of Production ....</b>	337	Linseed ....	349
<b>Summary of Australian Statistics ....</b>	339	Cotton ....	350
<b>Seasonal Calendar ....</b>	340	Potatoes ....	350
<b>Bushel Weights ....</b>	340	Onions ....	351
<b>Agriculture—</b>		Tomatoes ....	351
Wheat ....	341	Other Vegetables ....	352
Oats ....	346	Orchards ....	353
Barley ....	346	Apples ....	353
		Pears ....	354
		Citrus Fruit ....	354

## CHAPTER VIII—PRODUCTION—continued

	<i>Page</i>		<i>Page</i>
<b>PART 1—PRIMARY PRODUCTION—cont.</b>		<b>PART 1—PRIMARY PRODUCTION—cont.</b>	
<b>Agriculture—continued</b>		<b>Mining—continued</b>	
Stone Fruits ....	355	Silver ....	387
Bananas ....	355	Bauxite ....	387
Vineyards ....	356	Coal ....	388
Nurseries ....	356	Copper Ore and Concentrates ....	388
Holdings Growing Certain Crops ....	357	Copper Ore (for fertiliser) ....	389
Artificial Fertilisers ....	357	Mineral sands ....	389
<b>Pastoral—</b>		Iron ....	390
General ....	357	Lead Ore ....	391
Sheep ....	358	Manganese Ore ....	392
Wool ....	360	Nickel ....	392
Cattle ....	363	Petroleum ....	393
Slaughtering ....	364	Potash ....	393
<b>Dairying</b> ....	365	Pyrites ....	393
<b>Pig Raising</b> ....	367	Salt ....	394
<b>Livestock in Australia</b> ....	369	Tin Ore ....	394
<b>Poultry Farming</b> ....	369	Other Minerals ....	386, 395
<b>Bee Keeping</b> ....	370	Construction Materials ....	395
<b>The Department of Agriculture—</b>		<b>Private Exploration for Minerals</b> ....	395
General ....	371		
State Farms and Research Stations ....	372		
Advisory Services ....	373		
Research Activities ....	373		
Agriculture Protection ....	374		
Other Services ....	375		
Administration of Acts ....	375		
<b>Artificial Breeding Board</b> ....	375		
<b>Farm Management Service Laboratory</b> ....	375		
<b>Trapping...</b> ....	376		
<b>Forestry—</b>			
The Prime Indigenous Forests ....	376		
The Inland Forests ....	376		
Forestry Administration ....	378		
Principal Forest Products ....	379		
<b>Fisheries—</b>			
General Fisheries ....	380		
Whaling ....	382		
Pearl-shell Fishing and Pearl Culture ....	383		
<b>Mining—</b>			
General ....	384		
Gold ....	386		

## CHAPTER IX—TRADE, TRANSPORT AND COMMUNICATION

PART 1—EXTERNAL TRADE	PART 2—INTERNAL TRADE
Constitutional Provisions and Legislation ....	Integrated Economic Censuses ....
Encouragement of Overseas Trade ....	Census of Retail and Selected Service Establishments, 1968-69 ....
Classification and Valuation of Trade ....	Census of Wholesale Establishments, 1968-69 ....
Summary of Trade ....	Survey of Retail Establishments ....
Direction of Trade ....	Deliveries of New Agricultural Machinery ....
Imports ....	Sales of New Tractors ....
Exports ....	Wholesale Sales and Stocks of Wine and Brandy ....
Average Export Values ....	
Ships' Stores ....	
Overseas Imports and Exports ....	
Customs and Excise ....	

## CHAPTER IX—TRADE, TRANSPORT AND COMMUNICATION—*continued*

	<i>Page</i>		<i>Page</i>
<b>PART 3—TRANSPORT</b>		<b>PART 3—TRANSPORT—<i>continued</i></b>	
General ....	440	Road Passenger Transport Services ....	456
Shipping ....	441	Motor Vehicle Usage ....	457
Administration of Ports ....	444	Road Traffic Accidents ....	458
The Port of Esperance ....	444	Passenger Ferry Service ....	460
Railways—		Air Transport ....	460
Origin and Development....	446	Transport Co-ordination ....	462
The Western Australian Government			
Railways Commission....	446		
Iron-ore Railways ....	449		
Commonwealth Government Railways	449		
Operations of Government Railways in			
Australia ....	449		
Railway Gauges ....	450		
Roads and Road Traffic—			
General ....	451		
Vehicle Registration, Licences and Traffic			
Control ....	452		
Finance for Roads ....	455		

## CHAPTER X—INDUSTRIAL CONDITIONS, EMPLOYMENT AND PRICES

<b>PART 1—INDUSTRIAL CONDITIONS</b>		<b>PART 2—EMPLOYMENT</b>	
Industrial Authorities—		General ....	495
Commonwealth Authorities ....	475	The Work Force ....	495
Western Australian Authorities ....	475	Classification According to Occupational	
Employer Organisations ....	476	Status ....	496
Employee Organisations ....	477	Classification According to Industry ....	499
Apprenticeship ....	478	Classification According to Occupation	503
Incidence of Industrial Awards ....	480	Labour Force Survey ....	503
Industrial Disputes ....	481	Estimates of Employment ....	504
Wages and Earnings—		Unemployment ....	506
Commonwealth Basic Wage ....	483	Commonwealth Employment Service....	507
State Basic Wage ....	483		
Equal Pay for Male and Female Workers	486		
Minimum Wage Rates ....	487		
Average Weekly Earnings ....	488		
Survey of Weekly Earnings and Hours	489		
Hours of Work and Leave Provisions—			
Standard Hours of Work ....	490		
Annual Leave and Public Holidays ....	490		
Long Service Leave ....	491		
Workers' Compensation ....	491		
Industrial Accidents ....	492		

### PART 3—PRICES

Retail Prices and Price Indexes ....	509
The Consumer Price Index ....	509
Retail Price Index Numbers, 1901 to 1972	511
Retail Prices ....	512
Wholesale Price Indexes of Materials Used	
in Building ....	512

## STATISTICAL SUMMARY FROM 1829 (p. 518)

## WESTERN AUSTRALIA IN RELATION TO AUSTRALIA (p. 539)

## APPENDIX (p. 540)

### CHAPTER III—CONSTITUTION AND GOVERNMENT

The State Parliament
Overseas Representation in Western Australia
Commonwealth Government Administration

### CHAPTER IV—POPULATION AND VITAL STATISTICS

PART 1—POPULATION
The Census

## CHAPTER V—SOCIAL CONDITIONS

### PART 4—HOUSING AND BUILDING

#### Housing and the Census

### PART 5—SOCIAL BENEFITS, PENSIONS AND WELFARE SERVICES

#### Pensions, Allowances and other Relief Payments

##### Student Children

##### Domiciliary Nursing Care Benefit

## CHAPTER X—INDUSTRIAL CONDITIONS, EMPLOYMENT AND PRICES

### PART 2—EMPLOYMENT

#### Occupation, Occupational Status and Industry—1971 Census

#### THE 45th ANZAAS CONGRESS : PERTH, 1973

#### THE WESTERN AUSTRALIAN ECONOMY, 1959 TO 1973

#### ARTICLES, MAPS, ETC. IN PREVIOUS ISSUES

### STATISTICAL DIVISIONS (p. 574)

### LIST OF LOCAL GOVERNMENT AREAS (p. 576)

### INDEX (p. 577)

### LIST OF STATISTICAL PUBLICATIONS (p. 597)

### GENERAL MAP OF WESTERN AUSTRALIA (inside back cover)

*Including:* Local Government Areas

Statistical Divisions

Principal Air Routes

Isohyets

### CORRIGENDUM

Page 107

Members of the Legislative Assembly

The numbers in the summary should read:

A.L.P.	26
C.P.	7
Lib.	18

---

### ROUNDING OF FIGURES

Many of the figures appearing in the tables have been rounded (to thousands or, in some cases, millions), without making those adjustments which would be needed to make the rounded figures add to the rounded total. It is for this reason that figures do not always add to the totals shown in the tables.

Percentages appearing in the tables have been corrected to the first (or second) place of decimals without making those adjustments which would be necessary to make the percentages so expressed add to precisely 100.

## CHAPTER I—DISCOVERY, COLONISATION AND DEVELOPMENT

### Western Australia—A Historical Survey

*Contributed by B. K. de Garis, M.A. (W.A.), D. Phil. (Oxon.)  
(Lecturer in History, University of Western Australia)*

The earliest inhabitants of Western Australia were the people now known as the Australian Aborigines, a brown-skinned people of medium height and slender build, who migrated to Australia from Southern Asia at least 20,000 years ago. In the absence of animals suitable for domestication or grasses suitable for cultivation, the Aborigines remained a nomadic people dependent on hunting and food collecting and with simple but effective implements made of stone, bone or wood. Nevertheless they had achieved a delicate balance with an extremely harsh environment, and the limitations of their technology were compensated for by an extremely complex and satisfying religious and cultural life.

For many thousands of years the Aborigines occupied Australia in tranquil isolation from the rest of the world. It is likely that Indonesian fishermen and traders, and perhaps some Malays and Chinese, occasionally visited some parts of the continent including the Kimberley coast, but their influence cannot have penetrated far inland. To the developing civilisation in Europe, Australia remained a complete mystery; a hypothetical Great South Land was often drawn in at the bottom of maps of the world, but there was no real evidence for its existence. By the sixteenth century, however, the improvement of shipbuilding and navigational techniques enabled Portuguese and Spanish sailors to explore the Pacific and come close to the north-east coast of Australia. The long period of isolation was nearing an end.

The first Europeans definitely known to have visited the shores of Western Australia were the crew of the tiny Dutch sailing ship 'Eendracht', which in October 1616 explored the area now called Shark Bay. We can speak with certainty about the visit of the 'Eendracht' because its skipper, Dirk Hartog, left behind a pewter dish fixed to a pole and inscribed with the details of the incident. It is possible that other European sailors had reached Western Australia before 1616; indeed there are tantalising fragments of evidence which suggest this, but Hartog and the 'Eendracht' remain the earliest authenticated visitors.

From 1616 onwards, however, Dutch vessels touched on the Western Australian coastline in rapid succession, some, such as the 'Batavia' in 1629 and the 'Vergulden Draeck' in 1656, being wrecked there. All of these visits were largely accidental, being brought about by the strong westerly winds which blew ships engaged in the thriving trade between Holland and the East Indies off their course. One exception to this rule was the visit in 1644 of Abel Tasman, who was sent by the authorities of the Dutch East India Company to explore the north and north-west coasts of the new land about which reports were constantly being received. Tasman named the western end of the continent 'New Holland', but like all the other early visitors he was not very impressed by what he saw of the arid terrain and its aboriginal inhabitants. Thus, although the Dutch had pieced together quite a lot of information about Western Australia by the mid-seventeenth century, they showed no interest in further exploration or settlement.

The first British ship to reach Western Australia was almost certainly the 'Tryal', which in May 1621 was wrecked in the vicinity of the Monte Bello Islands. Two boatloads of the survivors made their way to Batavia. There was no further British activity in the area until 1688 when a group of buccaneers in the 'Cygnets' spent some time on the north-

west coast, beaching their vessels for repairs in King Sound. One of these men was William Dampier, who subsequently published an account of 'New Holland' in a volume called *New Voyage Around the World* which attracted a great deal of attention. The British Government was stirred into outfitting the 'Roebuck' and commissioning Dampier to make a further voyage of exploration. In 1699 Dampier again visited the north-west coast of Australia, from Shark Bay to the Dampier Archipelago, and kept a careful record of all that he saw. On both occasions Dampier, like the Dutch, formed an unfavourable impression of 'New Holland', which he described as dry, sandy, and unsuitable for agriculture. 'The inhabitants of this country' Dampier described as 'the miserablist people in the world', and he held out little hope of profitable trade with them. Such comments did not encourage governments to spend further money on investigation, and for another hundred years there was little activity off the west coast.

In the meantime, Captain James Cook in the 'Endeavour' had in 1770 discovered the east coast of Australia, and his reports about it were much more favourable than those of earlier sailors about the north and west coasts. Cook formally claimed the eastern portion of 'New Holland' for the British Crown and named it 'New South Wales'. Thus it came about a few years later that the British Government, no longer able to send convicts to a newly-independent America and with gaols bursting at the seams, decided to make New South Wales the site for a new penal colony.

In January 1788, Captain Arthur Phillip arrived at Sydney Cove with a party of convicts and marines and the European occupation of Australia had begun, though it was some time yet before Western Australia was colonised, for Phillip's commission as first Governor of New South Wales gave him authority over little more than half the continent. In 1825 Governor Darling's commission was extended beyond that of his predecessors to cover two-thirds of the country, but the western third remained unclaimed territory. However, the colonisation of New South Wales had provided a base for more detailed exploration of Australian coastal waters and by the 1820s the western coast had been extensively charted by two enterprising British naval officers, Matthew Flinders and Philip Parker King, and by French navigators such as Baudin, Hamelin, and Freycinet.

The interest being shown in 'New Holland' by the French alarmed the British Government slightly, and although the area was still not formally claimed for Britain a small military garrison under the command of Major Edmund Lockyer was sent from Sydney to keep out 'trespassers'. On Christmas Day 1826 Lockyer and his party arrived at the majestic anchorage of King George Sound; the tiny and isolated outpost they established there was the first British settlement in Western Australia. This was not intended to be a permanent settlement, but before its abandonment in 1831 a full-scale colony was established several hundred miles up the west coast.

### THE SWAN RIVER COLONY

The British authorities were reluctant to add the trouble and expense of a new and remote colony to their already vast imperial responsibilities, but their hand was forced by a combination of pressures. A naval officer named James Stirling, who was in Australian waters in 1826-27 in command of H.M.S. 'Success', secured permission from Governor Darling to visit the west coast. In March 1827 Stirling spent a fortnight examining the Swan River area, hitherto better known to the Dutch and French than to the British. His report, and that of the New South Wales Government Botanist who accompanied him, spoke in glowing terms about the desirability of establishing a permanent settlement on the Swan, and Stirling offered to lead a party for this purpose. Governor Darling was easily persuaded to endorse the proposal but the British Government firmly rejected it and the scheme might well have ended there had Stirling not been invalided back to London in 1828. Once he had recovered from his illness Stirling lost no time in seeking support for his plan for a Swan River Colony, and he soon aroused the interest of a syndicate of capitalists who were prepared to invest large sums there. Stirling's frequent visits to the Colonial Office, together with his evidence that there was considerable public support for a new colony and recurrent rumours that the French still had designs upon 'New Holland', at last overcame official reluctance.

In November 1828 Captain Fremantle was dispatched in H.M.S. 'Challenger' to take formal possession of the western third of the Australian continent, and this he did on 2 May 1829. In the meantime the Colonial Office had announced that a colony was to be established at the Swan River with Captain Stirling as its first Lieutenant-Governor and that all settlers who arrived there before the end of 1830 would be granted one acre of land for every one and sixpence worth of capital, stock or equipment they took with them, with a further 200 acres for every labourer they took. These grants were to be absolutely free provided that the land was developed within ten years of arrival, though the settlers had of course to meet the expense of transporting themselves, their families and their servants to the Colony.

These were remarkably favourable terms and they caused a great deal of excitement in an England where social status was still largely dependent on landownership and where land was increasingly difficult to obtain. The Colonial Office was bombarded with inquiries about the proposed colony and there were references in the press to 'Swan River Mania'. Many of the inquirers ultimately stayed at home, or went elsewhere but there was no shortage of those who decided to throw in their lot with the new Colony. Perhaps the most famous of the early colonists was Thomas Peel, son of a wealthy Manchester manufacturer and merchant, and cousin of the Tory Prime Minister, Sir Robert Peel. Peel was promised no less than 250,000 acres of land on the south bank of the Swan in return for taking out 450 workmen and sinking his fortune of at least £20,000 in the Colony. Many of the other colonists were ex-naval or military men who could not afford to bring up families in England on the half-pay to which they had been retired after the Napoleonic wars. Others were younger children of the minor gentry and clergy with small expectations at home, or merchants who had amassed a modest fortune and wished to take up land. Such people were attracted to the Swan River scheme not only by the cheap land but because, unlike New South Wales, this was to be a colony for free men and free men only.

Captain Stirling set sail for the Colony in the transport ship 'Parmelia', which was accompanied by H.M.S. 'Sulphur' bearing a detachment of troops under the command of Captain F. C. Irwin. Other officials in the party were J. S. Roe, who was to be Surveyor-General and Peter Brown, the Colonial Secretary. The Colonial Chaplain, Rev. J. B. Wittenoom, followed a few months later. The 'Parmelia' arrived off Rottnest Island on 1 June 1829, followed by the 'Sulphur' a week later, and on 18 June 1829 a Proclamation was read and the Colony officially came into being. However, wet and wintry weather conditions kept the shiploads of settlers who began to arrive, huddled in tents on Garden Island. The name 'Fremantle' was bestowed on a site at the mouth of the Swan River and this was then proclaimed to be the port of the Colony. The choice of a capital was more difficult and several sites were toyed with before a spot at the foot of Mount Eliza, twelve miles up river, was selected. The name 'Perth' was given to the capital, this being the shire represented in the House of Commons by the Secretary of State for Colonies, and the new town was founded on 12 August 1829, with the ceremonial felling of a tree.

The colonists now began to move up to Perth from Garden Island, and by the end of 1829 most of the central blocks had been allocated and occupied. The number of settlers built up with embarrassing speed for twenty-five ships had arrived between June and December and by the end of 1831 the permanent population had reached 1,500. The surveyors could not keep pace with the spate of new arrivals clamouring for immediate land grants, so that the land was occupied most haphazardly and grants allocated with little knowledge of its quality.

In the first instance exploration and settlement was to the south of Perth. Once the land up the river to Guildford had been taken, small settlements were made down the coast at Bunbury and Augusta and on the Vasse River. A party from Perth visited the military outpost at King George Sound, and after that garrison was withdrawn to Sydney in 1831 the area was renamed the Plantagenet District with Albany as its town, and settled by intending farmers. Albany was also important to the infant colony as a port, for it

had a much better harbour than Fremantle and it was also closer to the main shipping route to Sydney. For much of the nineteenth century therefore, most overseas vessels called at Albany and goods and mail were then carried to Perth either overland or in small coastal packets. Another party led by Ensign Dale at length crossed the Darling Range and found good land in the York-Northam-Beverley district and after Stirling had verified this for himself settlement was allowed to spread in this direction also.

Unfortunately the rate of agricultural development was much slower than had been hoped and the first few years of the Swan River Colony were just such a struggle for subsistence as they had been in New South Wales. Few of the colonists were experienced practical farmers. Few had any conception of what Australia would be like or of the difficulties in bringing virgin bush under cultivation. Few had any idea what implements would be needed in the Colony, or how little use they would have for their fine carriages, their pianos and their gracious furniture. Few indeed were accustomed to, or capable of, the manual labour which the shortage of workmen in the Colony soon made imperative. Moreover, many of the workmen who did come to the Colony were little more suited to the pioneering life than their masters, having been recruited from among the paupers of London and other big towns in the south of England.

The delays which occurred in surveying and granting land in the early years added to the problem, as did the poor quality of the soil near Perth and along the coast. Further south where the soil was richer there were dense hardwood forests which were difficult to clear. The best agricultural and pastoral lands of Western Australia lay further inland and to the north and were not opened up for some years. In the meantime many settlers became discouraged and left the Colony. Rumours reached England that the Swan River Colony was a stagnant backwater, a place better avoided, and this discouraged further investment and migration.

It was particularly unfortunate that Thomas Peel's grandiose plan did not succeed, for this might have given the Colony the boost it needed. Peel fulfilled his undertaking to bring out 450 immigrants but he arrived too late to qualify for his original grant on the south bank of the Swan and had to be content with a quarter of a million acres of coastal sandplain and swamp between Armadale and Pinjarra. He proved incapable of running his vast estate, his men deserted him, his partner failed to send essential equipment and supplies, and the whole scheme collapsed. A land settlement scheme at Australind organised by the Western Australian Company, a few years later, was also unsuccessful.

For those who remained in the Colony and settled down to adapt themselves to the hard conditions and make the best of their new home, life was relatively uneventful through the 1830s and 1840s. Even after the establishment of colonies in South Australia and Victoria in the mid 1830s the Swan River settlers were still isolated by many hundreds of miles from other settlements of Europeans, and visitors were few. The Aborigines did not offer any real resistance to the white men who displaced them from their ancestral lands, though in 1834 thirteen Aborigines and one white policeman died as a result of the 'Battle of Pinjarra', the only serious clash between the two peoples.

The colonists were too scattered and too absorbed in wresting a living from the soil for there to be much social and cultural life, though in Perth itself there were regular balls, picnics, race meetings, and musical evenings, with Government House the centre of polite society. From the beginning the Swan River settlers emphasised the fact that theirs was a 'gentleman's colony' as opposed to the 'pick-pocket colonies' of New South Wales and Van Diemen's Land, and for many years Western Australia remained the most 'English' of the antipodean colonies. Divisions between classes were naturally more fluid and more informal than in Britain, but an elite group of wealthy land-owning families quickly established a monopoly, first of social prestige and later of political influence. There were few facilities for education in the early years. Those who could afford to do so imported governesses for their children until they were old enough to be sent to English boarding schools, but most children received scarcely any schooling. There were few clergymen in the Colony but devoted lay people saw to it that religion was not entirely

neglected. From 1840 onwards the Colonial Government subsidised the main denominations and Anglican, Wesleyan and Congregational churches were built. Catholic priests arrived from Ireland in the 1840s, and in 1846 a party of Spanish Benedictine monks founded a monastery and mission to the Aborigines at New Norcia.

Until 1838 Captain Stirling remained Governor of Western Australia, as the Swan River Colony came to be known following the suggestion by Matthew Flinders that the continent as a whole should be called Australia. He was succeeded by John Hutt, who held the office from 1839 until 1846. For the first few years Stirling wielded absolute and undivided authority. In 1832 Legislative and Executive Councils were created, composed of a handful of government officials and later a few wealthy colonists nominated by the Governor, but in practice for more than half a century the Governor remained the supreme power in the Colony.

### THE CONVICT ERA

By the late 1840s, two decades after the Colony's foundation, the population of Western Australia was still less than 5,000 strong and the rate of economic development remained painfully slow. An impasse had been reached. The Colony could not attract the labour and capital it needed until it showed signs of more dynamic progress, but without additional labour and capital, progress was impossible. In desperation the leading colonists swallowed their pride and asked the British Government to send out convicts to Western Australia. Their request was acceded to with embarrassing speed, for by this time New South Wales had refused to accept any more convicts and Britain was once again facing its old problem of overcrowded gaols. In June 1850 the first boatload of convicts arrived, before any preparations had been made for their reception and deployment. Convicts continued to be transported to the Colony for a period of eighteen years, the total number sent being 9,668, all of whom were men. The last party arrived in 1868 and thereafter the number of convicts gradually dwindled, though it was not until 1886 that the convict system was finally disbanded.

Each convict spent an initial period under direct government control, usually employed on public works, and then was given a ticket-of-leave to work for a private employer in one of the country districts. A man with a ticket-of-leave remained under the supervision of police and magistrates and could be re-arrested for even the most trivial of offences, but he had a choice of employers and had to be paid wages. In due course a well-behaved ticket-of-leave holder could apply for a conditional pardon, which made him a free man provided that he did not return to the United Kingdom before the expiration of the full term of his sentence. This scheme differed considerably from the haphazard assignment system of New South Wales, and the treatment of convicts in Western Australia was also less brutal than had been the case in the eastern colonies. Chain gangs, solitary confinement, and the cat-o'-nine-tails were still used, but they were used less frequently and less indiscriminately.

One of the most obvious ways in which the convicts made an impact on Western Australia was that their labour gave the Colony its first good roads, bridges, and public buildings. Before 1849 there had been neither the money nor the labour for public works; even between Perth and Fremantle most of the traffic had been by river because the road was so bad. The availability of convict labour changed this and though for the first few years the convicts were used mainly for the construction of buildings for themselves and their gaolers, later the benefits of their work were spread around the Colony. The streets of Perth and Fremantle were levelled and improved; a main road to Albany was cleared; scores of bridges were built including a new causeway at Perth; jetties were constructed at Bunbury and Busselton; and courthouses were built in all the major country towns. In Perth itself the convicts were solely or partially responsible for such buildings as the old Perth Boys' and Bishop Hale's schools, the Town Hall, the Pensioners' Barracks, and a new Government House. By 1870 Perth gave an appearance of solidity and prosperity and looked like a town rather than an untidy village.

Convict labour also gave a boost to agriculture and other industry, for the settlers now had a much larger work force on which to draw. Moreover there were more people to be fed, clothed, and housed, and there was a more reliable flow of shipping to and from the Colony, so that both the internal and external market for colonial produce was expanded. The introduction of convict transportation also injected much needed capital into the Colony, for the British Government had necessarily to spend a great deal of money on feeding, clothing, and guarding the convicts.

As a result of these and other factors the Colony developed much more rapidly in the 1850s and 1860s, the convict decades, than it had done in its first twenty years. The population soared from 5,886 in December 1850 to 22,915 in December 1869, and clearly the arrival of nearly ten thousand convicts and five and a half thousand assisted migrants, sent out as part of the Colony's bargain with the British Government, had a lot to do with this. The total area of land under cultivation increased sixfold in the same period and the number of sheep, cattle and other livestock kept pace with this rate of expansion. Wool-growing boomed just as it had done in the eastern colonies thirty years before, and this was particularly valuable because it provided the Colony with an export industry, most of the clip going straight to Britain. Other useful exports were hardwood timber to South Australia, sandalwood to China and horses to India.

With so much progress being made, some colonists began to feel that the Colony was ready to stand on its own feet again. At much the same time the British Government came around to the view that transportation was an expensive and inefficient method of dealing with the penal problem and in 1865 it announced that no further convicts would be sent to Western Australia after 1868. The eastern Australian colonies were jubilant at the news, for they had long objected to the steady trickle of ex-convicts making their way across the continent, and most Western Australians were also pleased with the decision. However, in the 1870s and 1880s it became apparent that the Colony had been more dependent on the convict system than most people had realised. In the twenty years after the end of transportation the rate of population growth dropped back to only half that of the previous twenty years, and for a time the agricultural industries actually lost ground. A series of bad seasons aggravated the problem and food supplies had once again to be imported. Fortunately the export of sandalwood and hardwoods continued to prosper and the pastoral industry also flourished, the total number of sheep in the Colony being in excess of 1½ million by the mid-1880s. Another bright feature of the period was the dramatic rise of the pearling industry off the north-west coast to become a valuable export-earner.

As time passed, the search for minerals, timber, and better farming land, plus curiosity and adventurousness, led the colonists to explore their vast territory more widely and the frontiers of settlement spread. In the 1850s and 1860s the South-West was extensively occupied as far south as Albany and Kojonup, and to the north the Greenough district was opened up and quickly became the principal wheat-producing region. In the 1870s the pastoralists pushed further north to occupy the De Grey, Gascoyne and Murchison districts, and by the 1880s even the Kimberley districts were beginning to be settled. The completion in 1877 of the Overland Telegraph line connecting Perth with Adelaide and Darwin and thence with the outside world did much to reduce the isolation of the Colony, and railway building in the late 1870s and the 1880s improved communication and transport within the Colony. However, the scope of such works was limited by the impoverishment of the colonial treasury in the post-transportation period.

Part of the price which the colonists paid for their convict labour was that political development was very slow. Throughout the convict era Western Australia was ruled by semi-autocratic Governors sent from Britain, with the aid of their paid officials and a few prominent settlers chosen by themselves. Once transportation ended the colonists lost no time in agitating for a greater voice in the conduct of affairs, and in response to their demands a new constitution was introduced in 1870 embodying the principle of representative government. Thereafter the Legislative Council consisted of eighteen members, twelve of whom were elected by the colonists, and was presided over by its own Speaker rather than by the Governor. However, the powers of the Council were very restricted and when the Governor and the Council clashed, the former always prevailed.

The introduction of 10,000 convicts changed the character of Western Australian society much less than many people feared. Naturally there was a slight increase in lawlessness but few of the convicts committed further serious crimes in the Colony and bush-ranging was less common than it had been in eastern Australia. The Colony was so isolated that few convicts attempted to escape from it, though a party of sixty Irish Fenians who arrived on the last convict ship caused some trouble. One of them, John Boyle O'Reilly, escaped by stowing away on an American whaler in 1869 and seven years later he successfully arranged for a group of his friends to abscond from Fremantle Gaol to another American ship, the 'Catalpa', which escaped because the local authorities were afraid to fire on the American flag. Such incidents were rare, however. Most of the convicts gave no trouble at all, and the policy of dispersing them around the agricultural districts enabled them to be absorbed so easily that they soon became indistinguishable from the rest of the working-class population. Since all of the convicts were men and few of their wives were prepared to accompany them, even when offered a free passage, the ratio of men to women in the Colony rose as high as two to one for a time. However, the Government saw to it that most of the assisted migrants brought out to the Colony were young single women, mostly Irish, and this helped to redress the balance of the sexes. Fortunately there was little prejudice against the convicts once they had served their sentence, and marriages between ex-convicts and free women were common. At the other end of the social ladder, the grip of the old-established land-owning families on the affairs of the Colony remained unchallenged during and immediately after the transportation period. Western Australia was a quiet and conservative Colony and retained its quaintly 'English' flavour well into the 1880s. Though no longer the stagnant backwater of the 1830s and 1840s, it was still very much the 'Cinderella' of the Australian group of colonies when compared with its brash and prosperous neighbours. However, before the end of the century the state of the Colony was altered dramatically by the discovery of gold.

### THE GOLD RUSHES OF THE 'NINETIES

The Western Australian colonists had always hoped that one day gold would be found in their Colony, just as it had been in most of the others, and in 1885 their dream began to come true. The first goldfield to be proclaimed as such was situated at Halls Creek in the Kimberley district, a remote spot some 300 miles east of Derby and 250 miles south of Wyndham. Despite its extreme inaccessibility and the scarcity of food and water there, several thousand men flocked to it as soon as the strike was announced. The Kimberley gold was exhausted within a few years but the experienced prospectors it had attracted to the Colony soon began to find payable gold elsewhere. From the Yilgarn and Pilbara fields, which were both proclaimed in 1888, the golden trail led through the Ashburton and Murchison finds in 1890 and 1891, to the fabulous discoveries of Bayley and Ford at Coolgardie in 1892 and of Hannan, Flanagan and O'Shea at Kalgoorlie in 1893. Suddenly Western Australia came to life and began to reduce the lead of the eastern colonies with giant strides.

While the gold rushes were at their height thousands of men streamed towards the 'fields on foot, on bicycles, on camels and horses, across hundreds of miles of arid scrub and desert. Settlements rose and fell almost overnight as rumours of new finds lured diggers from one area to another. Even on the established fields conditions were very tough in the early years, with makeshift huts or tents for shelter, a continual shortage of food and water, high temperatures, choking red dust, and little or no sanitation. The death toll was high from thirst, dysentery and typhoid, but by and large the diggers were law-abiding and there was little of the violence of the Californian gold rushes or the bush-ranging of the Victorian diggings.

In the early days most of the diggers prospected for alluvial gold by dry-blowing, or sank shallow shafts in search of gold-bearing reefs. Each man worked his own small claim, or joined together with a few mates to do so. Alluvial mining of this kind reached its peak in 1897 and then fell away rapidly. As early as 1894 it had become apparent

that the richest deposits lay underground and required expensive machinery and large-scale operations. By the end of the 'nineties the average digger had reluctantly abandoned his hopes of easy wealth and turned to working for wages in deep-shaft mines operated by large companies. The decline of alluvial digging brought to a close the colourful pioneering phase of the gold boom, but the value of gold production continued to rise yearly until 1903 when it reached a record of more than 2 million ounces. The bigger centres such as Kalgoorlie gradually took on a more permanent appearance with hotels, theatres, hospitals and schools being constructed. With the arrival of the wives and children of miners in increasing numbers, the goldfields had begun to settle down.

One indication of the startling impact which the discovery of gold made on the Colony was that the population leapt from 35,000 in 1885 to 101,000 in 1895, and by 1904 had reached 239,000. In other words the number of people in Western Australia increased almost sevenfold in the space of twenty years. Most of the new arrivals came from eastern Australia, which was suffering from a severe depression and a series of prolonged strikes in the early 1890s. Quite a large number migrated direct from Britain and there was a sprinkling from Europe and North America. By 1901 the 'old colonists', those who had been born in Western Australia or had lived there before the gold rushes began, were in a distinct minority in their own Colony.

The gold boom attracted capital as well as people to the Colony; British investors lost confidence in the other Australian colonies in the late nineteenth century but they vied with each other for opportunities to invest in Western Australia. More than 600 companies were floated in London for mining operations in Western Australia and shares changed hands feverishly in London, Perth, and Kalgoorlie, often at inflated prices. Large sums of money were thrown away on speculative or bogus ventures, but the more successful mines returned rich dividends to their shareholders.

From 1890 onwards the Colonial Government boldly embarked on a programme of large-scale developmental works financed by extensive borrowing on the London money market. The Eastern Railway was extended to Southern Cross in 1894 and then on to Coolgardie and Kalgoorlie. At the same time a new South-Western line was constructed and the Government encouraged private investors to build the Great Southern line to Albany and the Midland Railway line into the northern wheat belt. Fremantle Harbour was dredged and moles were built to make it a deep-water port, and ships were encouraged to make Fremantle rather than Albany their main port of call. Not least among the government works, most of which were presided over by C. Y. O'Connor, the Colony's brilliant Engineer-in-Chief, was the Eastern Goldfields Water Scheme. This ambitious project, which was completed in 1903, piped fresh water 350 miles from Mundaring Weir to Kalgoorlie and also supplied the agricultural districts along its route.

Not all of these projects were for the benefit of the goldfields; indeed it was the policy of the Government to channel much of its revenue and loan money into agricultural and pastoral development so that the Colony would have a solid base to fall back on when the gold began to peter out. Thus the Homestead Act of 1893 allowed *bona fide* settlers to take up small holdings free of charge provided they made specified improvements. An Agricultural Bank was founded in 1894 to finance new farmers, and the Bureau of Agriculture was opened to give them advice. Moreover, the Government placed tariffs on imported livestock and foodstuffs to give the farmers further encouragement. With all these incentives and a vastly expanded local market as well, the agricultural industries could scarcely fail to prosper, and despite some bad seasons the acreage under cultivation soared. The pastoral industry experienced a lean period in the early 'nineties but recovered around the turn of the century, with wool remaining a valuable source of export income. Other established industries such as pearling and timber shared in the general prosperity and various forms of light manufacturing industry sprang up around Perth and its metropolitan area.

The changed economic circumstances of the Colony were gradually reflected in its politics. In 1890 a new constitution conferred upon Western Australia the same kind of responsible self-government which the other colonies had enjoyed for thirty years.

The old Legislative Council was abolished and in its place there was to be an elected Legislative Assembly of thirty members and a nominated Legislative Council of fifteen members; executive government was to be entrusted to a Premier and Cabinet responsible to the Assembly.

When the new Parliament met in 1891, Sir John Forrest was appointed as the first Premier of Western Australia, a position which he retained for a decade. A native-born Western Australian and a former explorer and Surveyor-General, Forrest gave the Colony the strong leadership it required. There were no political parties at this stage and all members prided themselves on their independence, but Forrest's ministry could always muster the support of a majority in the Assembly.

The miners had little to do with the movement to secure responsible government and after it was granted, the restricted franchise meant that few of them were eligible to vote, and the electoral boundaries left the mining districts practically unrepresented. At first the miners were too preoccupied with the search for gold to pay much attention to their political rights, but as they became dissatisfied with the Government's mining regulations, high tariffs and freight charges, and emphasis on agricultural development, they began to agitate for reform. The protests of the mining community strengthened the hand of the more liberal representatives from metropolitan and agricultural constituencies and by 1901 all adult men and women had been granted the right to vote in elections for the Legislative Assembly, which was increased in size to give reasonable representation to the goldfields. The Legislative Council had been enlarged and made elective, and payment of Members of Parliament introduced. For the time being the old colonial elite remained in control of the government but it was obvious that their days were numbered, for the transfusion of men and ideas which it had received had changed the character of the Colony and brought it much more into line with the rest of Australia.

This trend was at once demonstrated and reinforced by the Colony's reaction to the movement for the federation of the Australian colonies. Forrest himself favoured federation but most of his colleagues and supporters were reluctant to relinquish to a central Government the powers which they had only just received, and feared that Western Australia would suffer from being yoked with areas which were economically more advanced. On the other hand, the miners were solidly in favour of federation, partly because so many of them had come from the eastern colonies and partly because they hoped that a central Government would be more sympathetic to their needs than the local Government was. When the Government refused to allow a referendum on the subject, the goldfields petitioned the British Government for separation from Western Australia and the creation of a new colony which could then federate in its own right. Although Britain did not take this request seriously, the agitation on the goldfields helped to force the Government's hand. A hasty referendum showed a heavy majority in favour of federation, and the Colony of Western Australia was just in time to become an original State of the Australian Commonwealth when it was proclaimed on 1 January 1901.

### CONSOLIDATION 1901-1929

The impetus of the gold rushes naturally carried over into the first decade of the twentieth century; indeed gold production did not reach its peak until 1903. But after the turn of the century gold no longer dominated the Colony as it had done in the 1890s. The mining population dwindled steadily and agriculture took up the slack, just as the Government had hoped and planned. The thirty-year period between federation and the onset of the great depression was for Western Australia a time of consolidation of the gains made during the gold boom, through the development of primary resources.

The incentives to agricultural expansion which Forrest had introduced in the 1890s were continued and supplemented by all the governments of this period. Newton Moore and James Mitchell were perhaps the principal architects of the expansion of the wheat belt but Labour Premiers in John Scaddan and Phillip Collier ably seconded their efforts. All the land along existing railway routes was surveyed and thrown open on generous terms and more than 2,500 miles of new line were constructed, most of it between 1904 and 1919,

to give access to hitherto unsettled areas. Settlers were enabled by the experimental work of the Department of Agriculture (formerly the Bureau of Agriculture) to push out in an easterly direction into districts which earlier generations had considered too dry for farming. Most significant in this respect was the development of two new strains of wheat, Nabawa and Bencubbin, which were particularly suited to local conditions. Through its Agricultural Bank the Government made money available to almost anyone who was prepared to try his hand on the land. Moreover, once the torrent of gold-seekers tapered off the Government began to bring out assisted migrants from Great Britain in considerable numbers. Thirty-three thousand people arrived in this way before the outbreak of the Great War in 1914, with a further 43,000 in the 'twenties, and many of the 'new chums' were turned into farmers.

These policies soon produced results. The acreage under cultivation trebled between 1905 and 1911, and trebled again between 1911 and 1916. The war gave a slight check to development, but in the 'twenties wheat production trebled again to reach a record of 39 million bushels in the 1929-30 season. Long before then Western Australia had been transformed from an importer of grain and flour to a large-scale exporter; indeed wheat had displaced gold and wool as the State's principal export commodity.

Of course not all government policies succeeded as well as this, the most notorious failure being Sir James Mitchell's attempt in the 1920s to found a dairying industry. Under a plan known as the Group Settlement Scheme, British migrants and others were sent in small groups to various spots in the south-west corner of the State and set to work in teams at clearing the heavily-timbered land. Once this had been done each man was allocated a block and equipped with a home and stock. Unfortunately the inexperience of the men, their difficulties in clearing the land, and the poor prices obtained when their farms did begin to produce, meant that many of the 'groupies' gave up in despair. The State did receive some benefits from the scheme but scarcely in proportion to the money outlaid. At the other end of the State the Kimberley beef cattle industry also made little progress, due to transport difficulties and the paucity of markets.

Most other primary industries flourished, however. The increasing popularity of mixed farming in the southern wheat belt kept sheep numbers and wool production on the rise despite a degree of stagnation in the northern pastoral areas. Fruit and vegetable growing expanded, with the Harvey irrigation scheme of 1916 and the introduction of banana growing near Carnarvon in the 'twenties being noteworthy developments. The Australia-wide wave of railway and telegraph construction and general building ensured the prosperity of the timber industry, and pearling reached its peak just before the outbreak of the war.

Secondary industry made much less progress in this period and was almost insignificant in the overall economy of the State. In this respect some of the fears of the anti-federationists may have proved justified, for the Commonwealth Government's twin policies of external tariff protection and interstate free trade made it almost impossible for infant Western Australian industries to compete with established industries in the eastern States. Apart from this the new Commonwealth Parliament and Government did not make much impact on the lives of most Western Australians. Even after the completion in 1917 of the Trans Australian Railway Line, part of Western Australia's price for federating, Melbourne and later Canberra still seemed remote and irrelevant to the citizens of the West, though in fact the financial supremacy of the Commonwealth over the States was growing rapidly in this period.

In the political sphere Western Australia experienced several important developments in the first three decades of the twentieth century. In 1901 Sir John Forrest left State politics to enter the first Federal Cabinet and with his departure the State was plunged into a period of unstable Ministries, which culminated in the formation of a party system. Among the gold seekers of the 1890s there had been some experienced trade unionists, who were largely responsible for organising Western Australia's first Trades and Labour Congress in 1899. This Congress decided upon the formation of a Political Labour Party—which at the State elections of 1901 captured eight seats in the Legislative Assembly.

Only three years later the State had its first taste of Labour rule when a minority government led by Henry Daglish held office for twelve months. The rapid rise of the Labour Party as a parliamentary force compelled the existing independents and liberal and conservative factions to come together to form a Liberal Party, which governed from 1906 until 1911. In the latter year Labour won a resounding electoral victory which enabled it to enjoy five years of office and to experiment with State socialism of a mild kind. Nation-wide controversy about conscription for war service led to a serious split in the Labour Party in 1917, however, and its leader, John Scaddan, and some of his followers joined a Nationalist coalition with the Liberals. For a few years political instability returned, but in the 'twenties the State experienced the regular alternation of Nationalist and Labour Ministries. One complicating factor was the Country Party, which had appeared on the scene in 1914 to represent the interests of the farming community. The Country Party normally supported the Nationalists, but not without periodic tensions and disagreements within the non-Labour camp.

Western Australia loyally backed-up the Commonwealth Government's decision to enter the 1914-1918 war in support of Britain, by providing more volunteers for military service overseas, in proportion to its population, than any other State. The absence of so many able-bodied men caused difficulties in some industries, as did the disruption of shipping to overseas markets, but the war did not otherwise change the tempo of life very much for those who remained in the State.

By 1929, the centenary of its foundation, Perth had grown into quite a large city for, despite the State's reliance on primary industries, more than 50 per cent of its population lived in the metropolitan area. Though there were fresh challenges and fresh opportunities for every generation, the introduction of modern amenities had made Western Australia a more comfortable place to live in than it had been during the pioneering years. Most parts of the State were well supplied with fresh water, and Perth, at least, had electricity. In addition to its railways, the State had an improving network of main roads and almost 40,000 licensed motor vehicles to use them. In the city these were supplemented by a tram service, which had begun around the turn of the century, and several private bus companies. As befitted a State of vast distances and dispersed population, Western Australia was also well to the fore in the development of civil aviation. W.A. Airways, which was founded by Major Norman Brearley in 1921 for operations in the North-West, was Australia's first commercial airline, and by 1929 there was also a regular Perth-Adelaide service. In 1913 the University of Western Australia received its first students, and its establishment crowned a system of free and secular State education which catered for the needs of children all over the State.

In its centenary year of 1929 the State was able to look back over 100 years of progress with a great deal of satisfaction. Few people had any inkling of the dark days which lay just around the corner.

## DEPRESSION AND WAR

The world-wide economic depression of the early 1930s affected Western Australia severely. There were several reasons for this, one of the most important being the State's over-dependence on a few primary industries, which left it vulnerable to fluctuations in prices. Then again, the Government had financed its ambitious development schemes, many of which had not yet begun to pay for themselves, by raising large and frequent overseas loans. When the sources of overseas capital dried up, not only did the public works programme come to an abrupt halt, but the Government had great difficulty in meeting interest payments. To make matters worse, the financial crisis was intensified by a series of poor seasons.

The onset of the depression first attracted attention in Western Australia through a steep fall in the world prices of wheat and wool in 1930. As the situation worsened many farmers were forced off the land, and there was a general withdrawal from the marginal areas which had been brought under cultivation during the optimistic years of prosperity. When the Government cut back its public works, and commercial activity of all kinds

slowed to a walk, thousands of men found themselves out of work. Even those who kept their jobs had to accept wage cuts, the State basic wage being slashed from £4 7s. (\$8·70) to £3 9s. (\$6·90) per week. Oddly enough the only industry to benefit from the depression was gold mining. The financial difficulties of the 1930s led to an increased world demand for gold and induced the Commonwealth Government to offer a bonus to producers. This bonus plus a rise in the price of gold caused by devaluation of the currency, brought prosperity back to the goldfields and helped to draw off some of the unemployed.

Elsewhere in the State the picture was a gloomy one. Some men left their families in Perth and went out to the back-blocks in search of work, or lived in government camps whilst employed part-time on relief projects. Thousands of families were dependent on the 'dole' and on hand-outs from charitable organisations to keep them from starvation. Though few people actually starved, malnutrition was common. The widespread dismay at this turn of events resulted in an increase in lawlessness and violence; on many occasions the police were called in to control rowdy demonstrations by the unemployed.

The impotent discontent felt by so many Western Australians was further reflected in a move for the State to secede from the Australian Commonwealth. The old anti-Federal feeling of the 1890s had never entirely died out, and the social and economic dislocation of the 1930s gave it new life. Those who favoured secession argued variously that Western Australia would never be able to develop secondary industry until it could protect its manufacturers from competition from the other States; that the protective tariffs imposed by the Commonwealth for the benefit of manufacturers in the eastern States increased the costs of farm production to a level which was disastrous for a State dependent on primary industry; and that the Commonwealth Government had starved Western Australia of funds. So strong did the secession movement become that the State Government agreed to hold a referendum on the subject. The Commonwealth prepared a booklet and sent a deputation to argue the case for preserving the Federal union, but when the vote was taken, in April 1933, a two-to-one majority of voters favoured secession. A delegation was then dispatched to London to ask the British Parliament to pass legislation making Western Australia independent, only to be told that this was constitutionally impossible. Despite the overwhelming vote a few months earlier, the British rebuff was accepted and the secession movement died away, which lends credence to the view that many voters had realised that secession was impossible but had used the opportunity to express their dissatisfaction with the Commonwealth's failure to cope with the depression.

Apart from the secession episode, State politics were very dull during the 'thirties. Labour had the good fortune to be defeated at the polls in 1930, which meant that a Nationalist-Country Party government under Mitchell held office between 1930 and 1933 and incurred the ill-will of those adversely affected by the depression. On the same day as the secession referendum, Labour won an electoral victory and embarked on what was to prove to be a period of fourteen years unbroken Labour government, under Premiers Collier, Willcock, and Wise. Of course the real responsibility for dealing with the depression lay with the Commonwealth Government, which by this time had assumed far-reaching economic and financial powers. At first the Commonwealth did not handle the task very well. The Scullin Government was torn by internal divisions and handicapped by its lack of a majority in the Senate and a lack of co-operation from the Commonwealth Bank. Not until 1933 was a definite plan adopted for meeting the emergency and by that time conditions had in any case begun to improve. However, the Premiers' Plan of 1933 did assist the recovery by rallying the nation to a united course of action for the first time. By 1935 conditions were considerably better than they had been at the height of the depression, between 1931 and 1933, but even in 1939, on the eve of the World War, it is doubtful whether the State was back to normal.

Australia, and hence Western Australia, entered the war against Germany on 3 September 1939. Volunteers for overseas military service were called for, as they had been twenty-five years before, and once again the response was extraordinarily good. But for the first two years of the war the lives of those who remained at home differed little from peacetime. All this changed dramatically in December 1941, when Japan attacked the

United States base at Pearl Harbour and began her southward advance through South-East Asia and the Pacific in the direction of Australia. For a time it seemed likely that Australia would be invaded. Some towns in the North-West of Western Australia were bombed and the whole State was placed on a war footing. A total black-out was imposed and air-raid shelters were dug all round Perth and in country centres. Most able-bodied men were compulsorily called up for military service and other men and women were directed to work in strategic industries. Food, clothing, and petrol were rationed, and stringent price control introduced, as the nation channelled all its resources into a total war effort.

In response to Japan's entry into the war, Prime Minister Curtin recalled Australian troops from North Africa and the Mediterranean for defence of their homeland, and also turned to the United States for aid. Thousands of American servicemen passed through Australia, and fought side by side with Australians in the Pacific. Fremantle became for a time a major allied naval base for operations in the Indian Ocean and the South-West Pacific. By the end of 1942 the Japanese advance had been halted and the danger of invasion had passed, but the war continued for a further three years before cease-fire agreements were reached in both Europe and the Pacific. By then Western Australians had fought with distinction in practically every theatre of war.

Throughout the war years and the period of reconstruction immediately afterwards, the primary industries on which Western Australia was so dependent were subject to government control. Farmers were told what crops to grow and in what quantity, and their entire output was purchased at fixed prices. This meant that primary producers were protected from the price fluctuations of the 'thirties, at the cost of accepting organised marketing. The shortage of manpower led to further mechanisation and in many cases to improved efficiency. Industries located in the North-West and Kimberley regions suffered most from the war, through the closure of the Wyndham Meatworks and the disruption of transport facilities. Manufacturing industry experienced mixed fortunes. On the one hand the need to produce munitions, small arms, and other military supplies led to a growth in factory production, but on the other hand those factories which could not be converted to wartime uses were deprived of their manpower and forced to close. However, the vigorous programme of reconstruction after the cessation of hostilities gave secondary industry a valuable shot in the arm.

The highly centralised administration of the war and reconstruction years carried Western Australia a stage further towards complete integration with the rest of the Commonwealth. By the 1940s the expanded role of the Commonwealth in both raising and spending revenue, and its monopoly of power in such fields as foreign policy and defence, had made clear its paramountcy over the States. The vast increase in Commonwealth expenditure in Western Australia reconciled most people to this development, and in contrast to the secession movement of the 'thirties, Western Australia offered more support than any other State for further increases in Commonwealth powers at several referendums held in the 'forties.

### A STATE ON THE MARCH

The years since the end of the Second World War have been good ones for Western Australia.

The vigorous immigration policy launched by the Commonwealth at the conclusion of the war received the full support of the State Government, and contributed to a rapid growth in population to reach a total in excess of 836,000 by the Census of 1966. In addition to the British migrants of earlier years, migrants from a wide range of European countries were now included in assisted-passage schemes and absorbed into the community without difficulty.

Most of the traditional primary industries enjoyed continued growth and prosperity. In the early 1950s wool prices soared to six times their pre-war level, due largely to stock-piling by nations involved in the Korean War, and a pastoral boom followed. For a time everyone who could lay their hands on grazing land and stock sought to grow wool, but the boom tapered off and by the 'sixties the wool industry had fallen back on an

expensive research and promotion campaign to stave off the competition from synthetic fibres. Whereas the woolgrowers returned to their pre-war auction system as soon as they were permitted to do so, wheatgrowers agreed to the continuation of organised marketing. The Australian Wheat Board proved very efficient at disposing of large harvests at satisfactory prices, and apart from slight seasonal fluctuations, Western Australian wheat farmers enjoyed a series of good years. Further mechanisation of rural industry and the application of scientific discoveries to combat disease and increase fertility led to improved yields from established farms and the opening up of additional lands. In particular the scientific innovations of the post-war years enabled large areas of 'light' land in the south-east of the State to be brought under cultivation. In addition to many individual holdings in this area, an American syndicate undertook to develop 1½ million acres in the vicinity of Esperance and has made good headway on the project. By 1967 Western Australia boasted of almost 32 million acres of arable land and a record wheat harvest of over 103 million bushels. The production of other cereals, fruit, vegetables, pigs, and other primary produce also made excellent progress.

One of the features of post-war economic planning was a revived interest in northern development. Transport facilities for the northern pastoral industry were improved, firstly by the 'Air Beef' scheme of 1949, and later through substantial government expenditure on beef cattle roads. However, the pastoralists continued to suffer from marketing difficulties and the deterioration of their land through insufficient expenditure on improvements. In 1961 the State, with Commonwealth assistance, embarked on an imaginative scheme of water conservation and irrigation based on the Ord River in the East Kimberley region. By 1962 a diversion dam had been completed and in subsequent years increasing quantities of cotton, sorghum and other tropical crops were produced, though not until 1967 did the Commonwealth agree to a submission by the State in 1964 for funds for the construction of the main dam and irrigation works. The establishment of an American low frequency naval communications station at North West Cape also contributed to the opening up of the North, quite apart from the mineral boom which was perhaps the most exciting development of the 'sixties.

The search for oil in the north of Western Australia was renewed soon after the war and was quickly rewarded by a strike near Exmouth Gulf in 1953. Not until 1966 was oil found again, this time in commercial quantity, at Barrow Island. Several further finds of oil and natural gas were made subsequently, with a possibility of commercial exploitation in the future. However, the most startling progress has been made in the field of iron-ore extraction. In 1960 the Commonwealth Government was persuaded to lift a long-standing embargo on the export of iron ore and this gave a stimulus to exploration and survey which resulted in the location of thousands of millions of tons of ore reserves. With Japan providing a ready market for the ore, and British, American, Japanese and Australian capital available to finance its extraction, developments were very rapid. By 1967 contracts had been approved for the export of 320 million tons of ore, and shipments had well and truly begun; new townships, railways, and port facilities had sprung up in the Mount Goldsworthy, Mount Tom Price, and Mount Newman areas. Moreover, the mineral boom was not confined to iron. Bauxite extraction in the Darling Range was expanding and vast new bauxite reserves were being tested near Gingin and in the Kimberley. And a wild scramble for nickel shares occurred in 1967, following the successful operation of Australia's first nickel mine, at Kambalda, and the discovery of further deposits in the Eastern Goldfields region.

The two post-war decades witnessed significant progress in the field of manufacturing industry, beginning with the opening in 1955 and 1956 of an oil refinery and a steel rolling mill at Kwinana, on Cockburn Sound. By 1968, when a blast furnace was brought into operation, the conversion of the rolling mill into an integrated iron and steel complex was well under way. Other major industrial concerns were attracted to the Cockburn Sound area by the improved transport facilities and favourable terms offered by the Government, and by the late 1960s Western Australia had at last overcome the handicaps which had inhibited industrial development for so long.

Much of the credit for these achievements must be assigned to the State Governments of the period, all of which did their best to promote local industry and draw the attention of the Commonwealth to the needs of the State. In its term of office between 1953 and 1959 the Australian Labor Party presided over the establishment of the oil refinery and steel rolling mill which subsequently became the symbols of a new era in the State's development. The Liberal-Country Party Government, which took over from Labour in 1959 and was still in office in 1970<sup>(1)</sup>, was even more active in this respect. The Commonwealth was persuaded to make large sums available for beef cattle roads, the Ord River Scheme, and a standard gauge rail link between Perth and the eastern States, in addition to providing for expanding needs in the fields of housing, hospitals, education, transport, and social services. The Liberal-Country Party Government also attracted to the State the vast quantities of private investment capital needed to finance the development of mineral extraction and industrial diversification. Relations between the major political parties remained amicable, whichever was in office, and the differences between them were differences of means rather than ends. In the late 'fifties politics were enlivened by the birth of the Democratic Labor Party, but though this party influenced the outcome of subsequent elections, it was not able to win any seats.

The State's capital city, Perth, and the tempo of life in it, naturally reflected all these developments of the post-war years. The city skyline became higher and more modern as nineteenth century buildings gave way to multi-storeyed concrete and glass structures. The Narrows Bridge, spanning the Swan River just outside Perth, was opened in 1959 and progress was made on a freeway system to cater for increasingly heavy motor traffic. Trams were banished from the city in 1958, and a new Transport Trust took over the responsibility for all metropolitan bus services. The suburbs of Perth sprawled out in many directions to provide accommodation for the growing population. The influence of European migration made itself felt in changes in eating and recreational habits and modes of dress and a slightly more cosmopolitan atmosphere. Something of the characteristic rush and bustle of big cities began to manifest itself, but most Western Australians were determined that the price of progress should not be the erosion of the friendly informality on which they prided themselves.

---

*NOTE. Readers interested in the history of the State in more detail, and in particular the post-war years, are referred to the Chronological Notes which appear in each issue of the Year Book from No. 1 of 1957 to No. 6 of 1967.*

*For a detailed history of Western Australia, readers are referred to the following publications:*

- ANON. *Twentieth Century Impressions of Western Australia*. P. W. H. Thiel and Co., Perth, 1901.
- BATTYE, J. S. *Western Australia—A History from its Discovery to the Inauguration of the Commonwealth*. University Press, Oxford, 1924.
- BATTYE, J. S. (ed.). *The Cyclopaedia of Western Australia*. Hussey and Gillingham Limited, Adelaide, vol. 1 (1912), vol. 2 (1913).
- CROWLEY, F. K. *Australia's Western Third*. Macmillan and Co. Ltd, London, 1960.
- KIMBERLEY, W. B. *History of West Australia*. F. W. Niven and Co., Melbourne, 1897.

---

<sup>(1)</sup> The coalition was defeated by the Australian Labor Party in 1971; see Chapter III.

## CHAPTER II—PHYSICAL FEATURES, CLIMATE, FLORA AND FAUNA

### Part 1—Physical Features and Geology

*Contributed by*

*Rex T. Prider, B.Sc., Ph.D., F.G.S., M.Aust.I.M.M.  
(Professor of Geology, University of Western Australia)*

The development of any country depends on its natural resources and the industry of its people, and there can be few more important investigations for any country than those dealing with the productive capacity of its territory. Natural resources—be they power, mineral, or soil resources—are dependent entirely on the climate, physical features and geology. Looking at the pattern of development of Western Australia we see that for nearly seventy years after the foundation of the Swan River Colony in 1829 agricultural production barely kept pace with the requirements of the small population. The discovery of gold in the 1890s, however, led to a period of rapid expansion and Western Australia became one of the major gold-producing areas of the world, and with this increase in mining production there was a corresponding expansion of the agricultural and pastoral industries. We are now experiencing an expansion of our secondary industries. Today, with the realisation of the base metal mineral potential of Western Australia—the proven deposits of iron ore, nickel, bauxite, black sands, oil and natural gas and the high probability of further discoveries—we are in another period of unprecedented development. The mineral discoveries of recent years in Western Australia have stimulated the mining industry not only in Western Australia but throughout the whole of Australia so that now mineral exploration is being pursued with renewed vigour throughout the country. The Western Australian mineral discoveries of the late 1960s have been accompanied by a corresponding increase in our secondary industries and the opening up of formerly sparsely populated areas, particularly in the Pilbara. In each of these phases of development we can see the dominating influence of the geological environment so that geology, from being relatively unknown and the Cinderella of the sciences, is now becoming known to all and attracting increased attention.

The nature of the rocks underlying any region is one of the major factors controlling topography, soil, and mineral resources. The latter is self-evident. The soil, on which we are so dependent, was formed by the weathering of the underlying rocks and many of its characters are due to the parent rock material. Much research has been carried out into trace element deficiencies in soils and the application of the new knowledge has produced astounding results as far as land utilisation is concerned. At first sight it would seem fantastic to think of the underlying rocks being in any way responsible for malnutrition of stock, but when it is demonstrated that the malnutrition is due to the lack of some minor element in the fodder which is due to its deficiency in the soil, a deficiency which, in its turn, is due to the absence or relative absence of such elements from the parent rocks from which the soil was derived, the significance of the geological environment becomes evident. Topography which is important in connection with land utilisation, water conservation, power (hydro-electric) resources, and in affecting climate, soil erosion, coastal erosion, transport routes, harbours, and so on is also dependent to a great extent on the nature and structure of the underlying rocks.

It is appropriate therefore that we should consider here the physical features and geology of Western Australia since they, together with the climate, are the primary controls of our soil, mineral, water and power resources, on which our existence and future development are entirely dependent.

## PHYSICAL FEATURES

In the broadest way this State can be divided into two physical regions: (i) a tableland (the *Great Plateau*) in various stages of dissection occupying the whole of the interior of the State; (ii) a low-lying narrow strip (the *Coastal Plains*) running almost continuously along the coast from near Albany to Broome. A third physical region, the *Scarplands*, separating the Coastal Plains from the Great Plateau, may be distinguished. This, although only a narrow belt, is a significant one in the southern part of the State because of its importance in connection with the water conservation schemes on which the metropolitan area, the mining fields in the vicinity of Kalgoorlie, the intervening agricultural and pastoral districts, the irrigation areas on the coastal plains south of Perth, and more recently the wheat belt along the Great Southern Railway, are dependent.

**The Great Plateau**

The Great Plateau which occupies more than 90 per cent of the area of the State varies considerably in elevation. In its highest parts (in the North-West) it attains a height of approximately 4,000 feet above sea-level. The greater part is, however, below the 2,000-ft contour and its average elevation is of the order of 1,000 to 1,500 feet above sea-level. Although there is this considerable variation in level the changes are so gradual that the plateau character of the country is not obscured and for the most part it may be regarded as having a vast gently undulating surface. Occasional hills (monadnocks, which are remnants of a previous cycle of erosion) rise above the general surface of the plateau.

The Great Plateau may be conveniently subdivided into an area of exterior drainage (where there are definite rivers which flow to the sea), an area of interior drainage (where such water as flows passes into inland basins), and two areas of no surface drainage but which, if they had drainage, would belong to the exterior drainage system. The area of exterior drainage can be marked out by connecting the source of the streams which flow to the sea and if this is done it will be seen that the width of the exterior drainage belt varies considerably. Thus in the Kimberley and North-West Divisions some of the rivers are hundreds of miles long, but in the south-west part of the State many of them are comparatively short. The areas of no surface drainage are in the north North-West along the Eighty Mile Beach from the mouth of the De Grey River to the north of Broome, and on the Nullarbor Plain in the south-eastern corner of the State. The remainder of the country forms the interior drainage area.

In the area of exterior drainage the dominant feature of the extreme south-west and the northern part of the plateau is a reticulate pattern of rather deeply-incised watercourses. In the southern part of the State these deeply-incised watercourses where they pass from the plateau to the coastal plains are of great significance (as has already been mentioned) in connection with water supply schemes. Elsewhere in the State the marginal portion of the Plateau is drained by rivers that flow to the sea only at times of exceptional rainfall and, speaking in the most general way, have courses at right angles to the coast.

The area of interior drainage is arid and practically riverless. Small creeks run from the higher parts of the country but they either disappear on the extensive flats or reach the shallow basins which are termed salt or 'dry' lakes, the term 'dry' being used since these so-called lakes are free from water except after fairly heavy or long-continued rain. These 'lakes' are generally elongated, narrow, and often winding salt-encrusted flats arranged in long, more or less connected streams. After heavy rain they are covered with a thin layer of water and, after unusually heavy rain, water has been known to flow southwards from one to another of the 'lakes' of a string, except towards the western margin of the plateau where the drainage is to the west. It is evident that these elongated 'lakes' are the remnants of an old river system developed during a more humid period. The salt lakes are of some economic significance since, on the evaporation of the water, common salt and other substances such as gypsum are deposited on the floor of the lake. The gypsum, which crystallises earlier than the common salt, is generally blown from the damp surface of the dried-up lake and deposited as dunes of 'seed gypsum' on the

leeward (eastern) side of the lake. These dunes are utilised, for example at Lake Seabrook north of Yellowdine, as a source of gypsum for plasters. Common salt, which separates later, forms a crust on the floor of the lake when it has been completely dried up and such salt deposits are exploited, for example at Lake Lefroy near Widgiemooltha. In a few of the Western Australian salt lakes significant deposits of alunitic clay have been discovered which have been worked as a source of potash.

Over a large portion of the interior drainage part of the Great Plateau there are extensive sand-plain soils overlying a hard laterite ('ironstone') layer, which is of the order of up to fifteen feet in thickness, below which lies an intensely weathered zone from which most of the nutrient elements so important for plant growth have been leached. These more recent geological formations will be discussed in the section of this Part dealing with geology, but we may note here the significance of this lateritic profile (sandy soils near the surface, 'ironstone' a few feet below, and completely kaolinised rocks still deeper) so far as soil fertility is concerned. This lateritic profile is the result of long-continued weathering processes which have resulted in almost complete leaching of the valuable nutrients and as a result soils developed in any part of this profile are generally very poor in character. It is only where erosion has cut through the lateritic profile and still younger soils have been formed by weathering of the underlying rocks that the better soils are found. As has been mentioned, however, with recent studies of trace element deficiencies much can be done with these 'light' soils by the addition of small quantities of suitable trace elements such as copper and molybdenum.

The areas of no surface drainage include the Eucla Division and portions of the Eastern Division of the State. This area is occupied largely by horizontal or nearly horizontal limestones of the Nullarbor Plain and the drainage here is sub-surface in character through subterranean streams and caverns in the limestone. The Nullarbor Plain is an extensive monotonously level plain standing at a height of about 600 feet above sea-level. The Western Australian part of the Nullarbor Plain is bordered to the south by a narrow coastal plain but further east, at the head of the Great Australian Bight, in South Australia, this coastal plain is absent and the southern edge of the Plain is truncated by cliffs which rise almost sheer for 200 to 400 feet above sea-level.

The hills of the Great Plateau are of two kinds, ridged and table-topped. In the southern half of the State the ridged hills, a few of which rise as much as 1,500 feet above their surroundings, are generally elongated in a north-north-west direction, reflecting in their trend the structure of the underlying rocks. The table-topped hills are seldom more than 200 feet above the general level. They are capped with a sub-horizontal layer of laterite ('ironstone') and bounded by low cliffs, in many places undercut, which are known in Western Australia as 'breakaways'. The table-topped hills are relics of erosion of a former laterite-covered peneplain (the *Darling Peneplain*) which was uplifted in Pliocene times to form the Darling Plateau and has subsequently been subjected to erosion under semi-arid conditions. The ridged hills on the other hand are elongated monadnocks which, being cored by resistant rocks such as jasper bars, withstood erosion and so rise above the general level of the remnants of the laterite-covered Darling Plateau.

The Great Plateau slopes down very gradually to the south and west. The downward slope to the south is interrupted by a narrow broken chain of rugged hills, the Stirling and Mount Barren Ranges which rise to heights of from 1,000 to 3,600 feet above sea-level. The western margin of the Plateau is, in the south, formed by the 'Darling Range' which, being merely the dissected margin of the Plateau, is much better called the *Darling Scarp*. This Darling Scarp is clearly defined between latitudes  $31^{\circ} 30' S.$  and  $33^{\circ} 30' S.$ , i.e. between Moora and Donnybrook, but it is difficult to recognise farther north or south. In the Kimberley Division the mountain ranges are the relics of erosion between the deeply-incised rivers and in this region the highlands of the plateau terminate abruptly along a steep, deeply-indented coastline.

### The Coastal Plains

Bordering the Great Plateau are the Coastal Plains which vary in width. The *Swan Coastal Plain* which extends from the neighbourhood of Perth to near Busselton averages about fifteen miles in width and is divisible into the following belts: a narrow band of moving sand dunes along the coast; a zone, averaging three or four miles wide, of sandy limestone which rises in places to heights of 100 to 200 feet above sea-level; a zone three or four miles wide of loose sand fixed by vegetation; and, abutting against the Scarp which forms the western margin of the Plateau, a zone of clayey soils of about the same width. A strip of low plain extends along the coast at intervals as far north as King Sound and coastal plains of some width occur near Port Hedland and Exmouth Gulf. A narrow plain fronts the cliffs of the Great Australian Bight for some distance and also occurs in other places along the south coast.

The coastline of Western Australia, some 4,350 miles in length, is broken by capes between Wyndham and Broome, between Port Hedland and Shark Bay, and between Cape Naturaliste and Israelite Bay. The intervening parts are comparatively featureless.

It has only been possible here to briefly outline the principal physical features of Western Australia and for a fuller description of the physiography of this State the reader should consult J. T. Jutson's 'Physiography (Geomorphology) of Western Australia' (*Geol. Surv. West. Aust. Bull.* 95).

### GEOLOGY

More than two-thirds of Western Australia is occupied by the ancient Australian Precambrian Shield which is composed of a complex of igneous, metamorphic and sedimentary rocks formed more than 600 million years ago. Most of our mineral deposits of economic importance, except coal, oil and water and superficial deposits such as lateritic iron ore and bauxite deposits and black sand and other alluvial accumulations, occur in these Precambrian rocks. The remainder of the State is occupied by sedimentary basins in which Palaeozoic and later sediments are developed. It is in these younger sedimentary basins that artesian water, coal, oil and natural gas are likely to occur. Finally there are the still younger superficial deposits—laterites, salt-lake deposits, and soils on which much of the economy of this country depends. It will be convenient therefore, in outlining the geology of the State, to consider it under the three main headings:

- (a) The Precambrian basement;
- (b) The sedimentary basins;
- (c) The superficial deposits.

The distribution of the solid rocks (omitting superficial deposits) is shown in the accompanying map (see page 20).

#### The Precambrian Basement

This includes the Archaean and Proterozoic rocks. The Archaean is a complex of crystalline igneous and metamorphic rocks, dominantly granites and gneisses with minor amounts of basic igneous and schistose metasedimentary formations. In places, particularly in the North-West and Kimberley Divisions, this Archaean complex is overlain unconformably by sedimentary and volcanic rocks of Proterozoic age which do not exhibit the extensive metamorphism so characteristic of the older Archaean complex. The time-boundary between the younger Precambrian (Proterozoic) and older Precambrian (Archaean) is approximately 2,200 million years ago. Within the different areas occupied by the Precambrian rocks the same generalised sequence can be distinguished.

In the Kimberley the oldest rocks are metamorphosed igneous and sedimentary rocks intruded by granite and carrying in places auriferous and base metal ore deposits, and these are overlain by un-metamorphosed sediments with basic igneous intrusives. The Precambrian age of all these rocks is evidenced by the fact that in the East Kimberley they are overlain by sedimentary rocks containing fossils of Cambrian age. This is the only area in Western Australia where the Precambrian age of the rocks of this crystalline complex can



definitely be proved on stratigraphical evidence alone. In the southern part of the State we find a similar sequence of crystalline schists with intrusive granites and by lithological correlation (which is not a very sound method) we assume that they are Precambrian although they cannot actually be traced through from the Kimberley. We do know that in the Carnarvon Basin these gneisses, schists and granites are older than the Devonian, which unconformably overlies them, and in the Perth Basin they are older than the Permian. During recent years the Precambrian age of these rocks has been confirmed by actual age determinations based on the decay of radioactive elements which occur in them. This work indicates that the bulk of the massive granitic intrusions of the southern part of the State crystallised from a molten state some 2,700 million years ago. Some, however, such as those in the vicinity of Albany and along the south coast, are much younger, being emplaced approximately 1,100 million years ago.

The Precambrian sequence in the North-West Division appears to be the most complete that is present in Western Australia and, from oldest to youngest, is as follows.

The *Warrawoona Succession*, which consists mainly of greenstones and green schists which were, prior to the intense folding and metamorphism to which they were subjected after deposition, basaltic lavas and tuffs with interbedded chemically deposited secondary rocks (jaspilites or banded iron formations) in the upper part of the sequence. These jaspilites have been the protorees of important iron-ore deposits such as those of Mount Goldsworthy. The Warrawoona Succession is overlain by a succession (the *Mosquito Creek Succession*) of sedimentary rocks which have also been intensely folded and metamorphosed to various types of platy-structured schists, slates and quartzites. Both the Warrawoona and Mosquito Creek Successions are invaded by granitic igneous rocks emplaced approximately 2,700 million years ago and both carry auriferous ore-bodies possibly genetically related to the intrusive granites. End-stage products of these granites are the very coarse-grained pegmatites which are important carriers of tantalum, beryllium, lithium and tin-bearing minerals. All of these rocks in the North-West Division—the Warrawoona and Mosquito Creek Successions and the granites intrusive into them—are therefore of Archaean age and have been called the *Pilbara System*. Still younger sedimentary rocks such as conglomerates, sandstones, shales and banded iron formations with interbedded basic igneous rocks, were deposited unconformably on the highly-folded, granite-intruded Pilbara System. This thick succession consists of a number of distinct groups. The three lower groups (the *Fortescue*, *Hamersley* and *Wylloo Groups*) are of Lower Proterozoic age as the youngest (the Wylloo Group) is intruded by granite aged approximately 1,700 million years. The two upper groups (the *Breshnahan* and *Bangemall Groups*) are of Middle and Upper Proterozoic age respectively. Of these Proterozoic rocks the Hamersley Group is most important economically since most of the iron-ore deposits of the Hamersley and Ophthalmia Ranges occur within, or have been derived from, the thick jaspilites (banded iron formations) within this group. Except in occasional narrow belts marginal to the Archaean blocks, the Proterozoic rocks have not suffered the intense folding that affected the older rocks and consequently they are generally flat-dipping to horizontally bedded un-metamorphosed sediments. Such sediments cover very extensive areas in the North-West (see Geological Map of Western Australia on page 20) and they are similar in many respects to the flat-dipping Proterozoic sediments which cover the plateau country of the North Kimberley. The final episode in the Precambrian history of the North-West was the intrusion of dolerite dykes and sills into all of the earlier rocks.

Coming to the southern half of the State we find a similar sequence to that in the North-West. In the part of the Precambrian Shield extending south of latitude 26° S. the oldest rocks that are recognised are the greenstones of the various gold-mining fields which occur in comparatively narrow belts elongated in a general NNW. direction (see map, page 20). These greenstones, which are for the most part metamorphosed basaltic lavas, contain interbedded ultrabasic lavas and jaspilites and are overlain by metamorphosed sedimentary rocks (generally referred to as whitestones). This System of rocks is the *Kalgoorlie-Yilgarn System*. From the mining point of view it is most important since the auriferous ore deposits of the main mining fields are confined to it, as are the known

nickel deposits. It also contains, in the jaspilites, important iron-ore deposits such as those of Koolyanobbing in the Yilgarn. It appears to be the equivalent of the Pilbara System of the North-West. After the formation of the Kalgoorlie-Yilgarn rocks they were intensely compressed into tightly closed folds with NNW.-trending axes. During this period of intense earth-movement alkaline solutions permeated the older rocks, converting them into granitic gneisses which occupy the bulk of the southern half of Western Australia. Subsequently granite magma was intruded as in the North-West. This completes the Archaean sequence. The Proterozoic is represented by a narrow strip of slightly altered sedimentary rocks along the Darling Scarp and the metasedimentary rocks of the east-west Stirling and Mount Barren Ranges along the south coast. Proterozoic igneous activity is represented by Early Proterozoic layered complexes and Late Proterozoic basic dykes. The former, aged 2,420 million years, take the form of basic-ultrabasic layered complexes, such as the large east-west dykes of the Norseman-Laverton greenstone belt which have some prospects for the occurrence of nickel and chrome deposits. The latter are dolerite dykes which, like those in the North-West, intruded all of the Precambrian rocks about 550 million years ago. They occur throughout the Precambrian shield but are most abundant near its western margin.

Putting together the information available throughout the State, we conclude that the oldest rocks found in Western Australia belong to the older part of the Archaeozoic Era. It is a great succession of rocks, generally much metamorphosed, which is called the Kalgoorlie-Yilgarn System in the southern part of the State and the Pilbara System in the North-West region. In the early part of Kalgoorlie-Yilgarn times there was much volcanic activity which took the form of eruptions of ultrabasic, basic and intermediate lavas, tuffs, and breccias. These were penetrated, shortly after their extrusion, by intrusions from the same magma; similar events must be occurring now in the interior of great volcanic masses like Etna or Hawaii. In later Kalgoorlie-Yilgarn times, the dominant process was sedimentation, so that the earlier volcanic rocks, with the minor associated bands of sediment, became overlain by a great thickness of sandy and clayey sediments. These sediments must have been derived from some land mass composed of rocks of pre-Kalgoorlie-Yilgarn age but this, possibly the oldest of all rock assemblages, has apparently not yet been found in Australia or any other part of the World.

After the accumulation of the Kalgoorlie-Yilgarn System came a period of intense earth-movement during which the rocks were, in most places, closely folded and regionally metamorphosed. The folding was accompanied by widespread granitic intrusions, some of which consolidated into primary gneisses whereas others soaked into the Kalgoorlie-Yilgarn rocks, penetrating them along bedding planes, joints, and other fractures, and so forming hybrid granitic gneisses by granitisation.

Where they were not affected by this First Granite Invasion, the volcanic rocks of the Kalgoorlie-Yilgarn System were regionally metamorphosed, in some places very strongly into dark-coloured schists, in others only very slightly. Similarly, the sedimentary rocks of the Kalgoorlie-Yilgarn System, where they have escaped the first granite invasion, *i.e.* have not been granitised, are in some places but slightly regionally metamorphosed, in others they are converted into various types of schist and quartzite.

All the Archaean rocks described above were invaded by the 'Younger' Granite, which, unlike the 'Older' Granite, formed well-defined intrusions many of which are stocks, though smaller offshoots from the same magma, in the form of 'porphyry dykes', occur at nearly every mining centre. These events occurred after the folding but before Proterozoic times. Any of the Archaean rocks in Western Australia may contain ore-bodies yielding gold and other minerals of economic value. It seems likely that many of these ore-deposits were formed at the time of the Second Granite Invasion which, from radioactive age determination studies, occurred about 2,700 million years ago. Important iron-ore deposits occur in the Archaean rocks at many localities, for example at Mount Goldsworthy in the Pilbara, Talling Peak in the Yalgoo Goldfield, and Koolyanobbing, Bungabin and many other localities in the North Yilgarn. These are all banded ironstone deposits which are interbedded with the basaltic lavas and sedimentary rocks of early Archaean age. In many places there are important manganese deposits

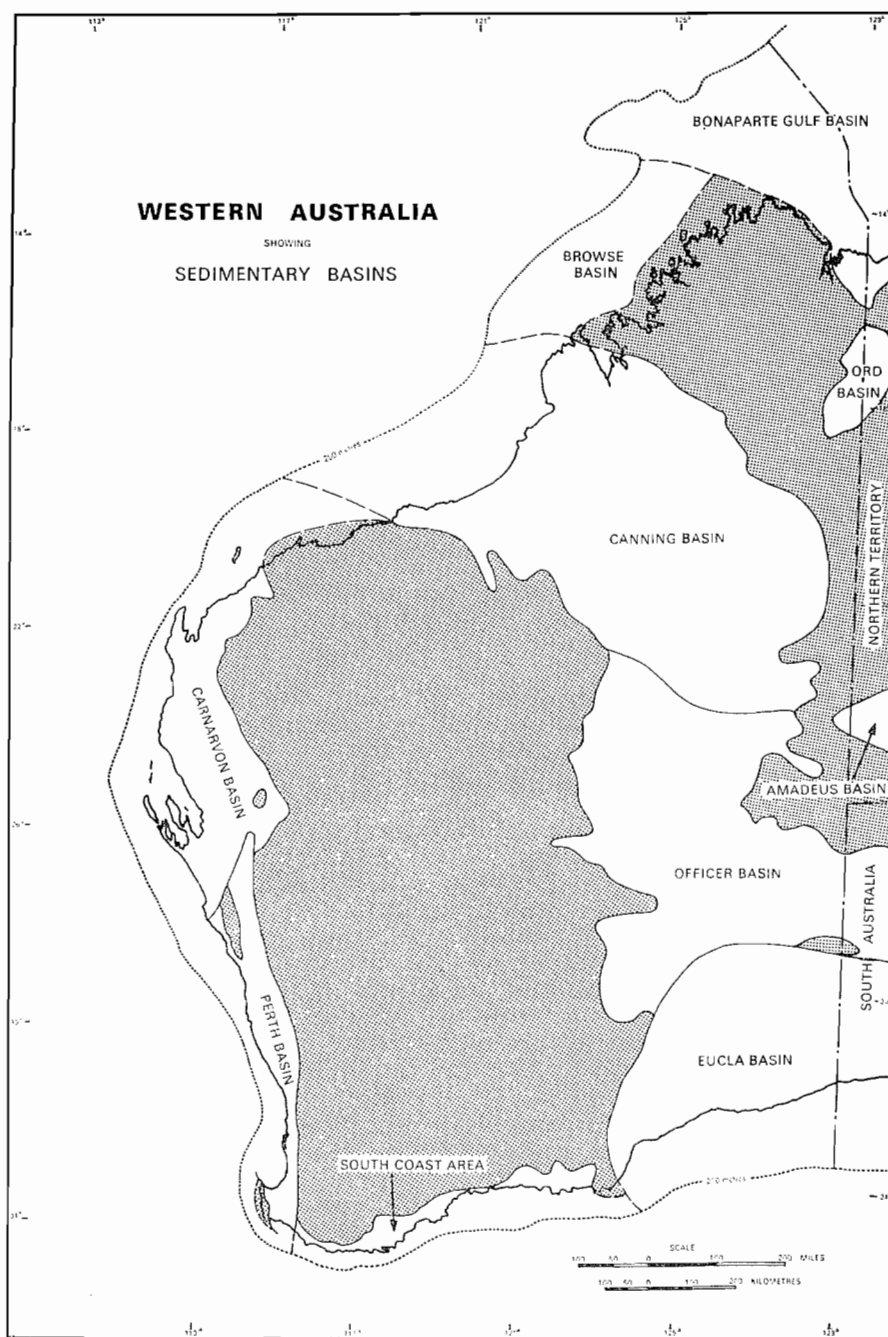
associated with these banded iron formations. A rich nickel deposit discovered in ultrabasic Archaean rocks at Kambalda near Kalgoorlie in 1966, has now become an important source of nickel concentrates. Base metal ore deposits, such as nickel, cobalt and chromium, are generally associated with ultrabasic igneous rocks. Ultrabasic rocks are intrusive into the older Archaean volcanic and metasedimentary rocks of the Kalgoorlie-Yilgarn System in the country between Norseman and Laverton and, following the discovery of important nickel deposits at Kambalda and Scotia in the vicinity of Kalgoorlie and Mount Windarra near Laverton, these areas are being carefully examined to assess their prospects for base metal deposits.

Finally, in Proterozoic times we had the deposition, under shallow-water conditions, of conglomerates, sandstones, shales and banded iron formations and another period of volcanic activity yielding basaltic lava flows. Other than in a few narrow belts these rocks have not suffered the intense earth movements which affected the older rocks, and so are practically un-metamorphosed. Important blue asbestos deposits in these rocks have been exploited at Wittenoom Gorge in the Hamersley Range of the West Pilbara. The asbestos deposits occur in banded ironstone formations which also contain large iron-ore deposits. The well-known iron-ore deposits of Cockatoo and Koolan Islands in Yampi Sound, which have been exploited for many years, are metasedimentary deposits of Late Proterozoic age. Although the Proterozoic rocks cover extensive areas in the northern parts of the State they have largely been stripped off the southern half by erosion. The final episode in the Precambrian history of this State was the widespread intrusion of dolerite dykes approximately 550 million years ago. Small lead and copper deposits are closely associated with these dolerite intrusions in the Northampton Mining Field, where the discovery of a lead-copper deposit at Waneranooka led, in 1842, to the first metal mining operations in Australia.

### The Sedimentary Basins

There are five major post-Proterozoic sedimentary basins in Western Australia and the adjoining continental shelf as shown in the accompanying map—the *Bonaparte Gulf Basin* in the north-east part of the Kimberley Division extending into the Northern Territory, the *Canning Basin* of the West Kimberley, the *Carnarvon Basin* of the North-West, the *Perth Basin* extending from lat. 29° S. to lat. 33° S. and the *Eucla Basin* occupied by the Nullarbor Plain. Large areas of the Central Division are covered by sediments of the *Amadeus Basin* of Central Australia and the shallow *Officer Basin*. In addition to these major basins there are smaller basins such as that at Collie and scattered areas where sediments, which are dominantly lacustrine in nature, have been deposited. In these sedimentary areas we find sediments ranging from Lower Palaeozoic to Pleistocene in age. These sediments of Palaeozoic and later age are, as a rule, less disturbed than those of Precambrian times and many are abundantly fossiliferous. Therefore, there is a sure means of correlating formations even in widely separated places, and so our knowledge of the history of these sedimentary areas is more detailed than in the much altered, highly folded, unfossiliferous Precambrian rocks of the basement.

Apart from the superficial deposits the economic significance of these basins is confined to their possibilities for the occurrence of artesian water, coal, oil and natural gas. A prime requisite for the occurrence of artesian and sub-artesian water is the occurrence of interbedded strata of varying porosity and permeability. These conditions are met in a number of the sedimentary basins in Western Australia and the development of the pastoral industry in the arid or semi-arid parts of these basins has been largely dependent on the occurrence of artesian water. In the metropolitan area, artesian bores are an important source of water supplies. Coal deposits are also confined to areas of sedimentary rocks and occur in the Permian rocks of two of the minor basins, namely the *Collie* and the *Irwin River Basins*, and in the Lower Jurassic sediments of the Perth Basin (at Eneabba, where a seam 100 feet thick has been found at a depth of 6,000 feet in a borehole sunk in search for oil, and is indicated in shallow shot-holes in the Hill River area). Up to 1966 the coal deposits of the lacustrine Permian beds of the Collie Basin constituted the only power source in Western Australia, since oil of commercial significance had only then been proved and the gently undulating topography combined with low rainfall



POST-PROTEROZOIC SEDIMENTARY BASINS OF WESTERN AUSTRALIA  
(PRECAMBRIAN AREAS STIPPLED)

make the hydro-electric resources insignificant. So far as oil is concerned the first occurrence of flow oil in Australia was encountered in Rough Range Bore No. 1, in the Carnarvon Basin, late in 1953. This discovery of flow oil resulted in an increase in the rate of geological exploration of all the major sedimentary basins. The results of extensive geological mapping, geophysical surveys and exploratory drilling have to date been rather disappointing. However, a commercial field was proved at Barrow Island off the north-west coast in 1966. Other oil occurrences have been located at various localities in the Perth Basin, e.g. in the vicinity of Dongara and this indicates the presence of suitable source material and conditions for oil formation and preservation. Moreover, oil search drilling operations have located some widely-spaced important finds of natural gas at Dongara and Gingin in the Perth Basin and North Rankin in the offshore part of the southern Canning Basin. The Dongara gasfield is now being exploited for the metropolitan area of Perth and the industrial areas further south. The possibilities of locating other commercial oilfields and gasfields in the Carnarvon, Canning and Perth Basins are by no means exhausted and the search is being actively continued both on land and offshore in the continental shelf area.

A detailed description of the sedimentary formations of different ages, from the Cambrian to the Recent, in the various sedimentary basins has been set down in 'The Stratigraphy of Western Australia' (*Journal Geological Society of Australia*, volume 4, part 2, pp. 1-161, 1958). It is proposed here merely to indicate the main features of the various basins.

The *Bonaparte Gulf Basin*, in the East Kimberley, extends into the Northern Territory and offshore below the Timor Sea. As already mentioned, this and the nearby Ord Basin are the only basins in Western Australia where rocks of proved Cambrian age are exposed. On Western Australian territory the Cambrian rocks extend as a narrow belt along the interstate border between lat. 16° 15' S. and lat. 18° 30' S., reaching westward from the border for 15 to 75 miles. The Cambrian consists of basalts at the base of the sequence, overlain by Middle Cambrian fossiliferous limestones, shales and sandstones. There is a small development of sandstones which are considered to be of Lower Ordovician age, following which there is a big time gap and the next youngest formations are sandstones and limestones of Upper Devonian and Lower Carboniferous age. Upper Carboniferous and Lower Permian formations are absent, the next marine transgression being in the Middle Permian when a thick sequence of conglomerates, sandstones, and limestones was deposited. The only other sedimentary rocks in this basin are freshwater sediments (siltstones, marls and cherts containing freshwater fossils) of late Tertiary age.

The *Canning Basin* (formerly named the Desert Artesian Basin), in the West Kimberley, extends from the coast between Derby and the De Grey River in a south-easterly direction almost to the 128° meridian. The north-east or Fitzroy part of this basin consists of a comparatively narrow and shallow section (the Lennard Shelf) flanking the Precambrian land mass to the north, and a deep trough (the Fitzroy Trough) estimated, from aeromagnetic geophysical surveys, to contain a thickness of the order of 20,000 feet of sedimentary strata ranging in age from Ordovician to Triassic. It was in this area that bores seeking oil were first drilled in Western Australia, following the discovery in 1919 of traces of oil in a water bore on Gogo Station. The larger Canning Desert portion, the South Canning Basin, is covered by a relatively thin Mesozoic and Permian sequence, but geophysical work followed by some deep drilling has indicated that there are deep depressions in this area, the deepest of which is the Kidson Sub-basin, which has a basement approximately 20,000 feet below the surface.

The oldest Palaeozoic sediments in the Fitzroy portion of the basin are richly fossiliferous limestones of Ordovician age outcropping near Price's Creek. These are overlain by Devonian reef limestones, sandstones and conglomerates, followed by Carboniferous sandy limestones. These in turn are followed by a thick Permian sequence of sandstones (of marine glacial origin deposited from floating ice), fossiliferous calcareous shales and limestones, and Upper Permian fossiliferous ferruginous siltstones and sandstones. All of these formations dip gently in a general south-westerly direction towards the centre of the basin but these regional dips are interrupted by local folding. Shale and

sandstone beds of Triassic age occur in the Fitzroy Trough section of the basin. The youngest rocks in this area are igneous intrusions in the form of intrusive sheets, dykes, and volcanic necks which have been found intruding all rocks of the sequence from the Precambrian granitic basement to the youngest sediments (Triassic) present. These igneous rocks, from direct geological evidence, are of post-Triassic age, and radioactive age determinations made in 1959 indicate that they were intruded 180 million years ago (*i.e.* in Jurassic times). This is one of the two areas in the whole of Western Australia where post-Cambrian igneous activity is known. It is interesting to note the occurrence of a small lead deposit in Devonian limestone at Narlarla in the Napier Range. This is the *only* primary metallic ore deposit of post-Proterozoic age known in Western Australia and it may be genetically related to the Jurassic igneous activity or may have been deposited from sea water by organisms during Devonian times.

In the Canning Desert section of the basin the Palaeozoic rocks are not well exposed and the greater part of this portion of the basin (where not obscured by superficial unconsolidated sands) is occupied by Mesozoic sediments ranging in age from Lower Jurassic to Lower Cretaceous. The deep depressions in the floor of the South Canning Basin are filled with Palaeozoic sediments as proved by the first deep oil test well (Kidson No. 1) which was abandoned at 14,539 feet in Lower Ordovician limestone. There is no evidence in the entire basin of any marine transgression after Lower Cretaceous times.

The basin extends some 200 miles offshore to the coral islands of the Rowley Shoals where some wells have been sunk in the search for oil.

The *Carnarvon Basin* (formerly called the North-West Artesian Basin) has been the most intensively studied of the major sedimentary basins in Western Australia. It extends along the west coast from Onslow near the mouth of the Ashburton River as far south as the mouth of the Murchison River, the maximum width of the basin being 125 miles at the latitude of Carnarvon. In this basin the eastern portion up to fifty miles wide is occupied by a thick sequence of marine Palaeozoic sedimentary rocks ranging in age from Middle Devonian to Upper Middle Permian, all of which have a westerly regional dip. The estimated maximum thicknesses of the Palaeozoic strata are:

Permian	....	....	....	13,175 feet
Carboniferous	....	....	....	2,510 feet
Devonian	....	....	....	5,120 feet

This Palaeozoic sequence which consists of fossiliferous Devonian limestones and sandstones, Carboniferous limestones and Permian marine glacial beds, limestones, sandstones, and shales, is almost entirely marine in origin. In the Carnarvon Basin we have the only wholly marine Permian sequence in Australia, and without doubt *one of the thickest marine Permian sequences in the World.*

No rocks of Silurian age were known from the western half of the Australian continent until 1957 when a bore sunk by West Australian Petroleum Pty. Ltd. at Dirk Hartogs Island in Shark Bay encountered limestones of Silurian age underlain by sandstones which are now correlated with the reddish sandstones which outcrop in the lower reaches of the Murchison River.

To the west the Permian rocks are unconformably overlain by Cretaceous sandstones, shales, marls and limestones attaining a total thickness of 2,000 feet. It is the basal formation, the *Birdrong Sandstone*, of the Cretaceous sequence that is the oil sand encountered in Rough Range Bore No. 1. Another Cretaceous formation, the Windalia Formation, is one of the important oil reservoirs of the Barrow Island Oilfield. The Cretaceous rocks outcrop in a north-south belt averaging fifty miles wide between the Palaeozoic and Precambrian rocks on the east and the Tertiary limestones to the west. The only other Mesozoic formation exposed at the surface in this basin is a Jurassic sandstone twenty-five feet thick. However, a deep well (Cape Range No. 2) drilled in search of oil at Exmouth Gulf, after passing through the base of the Cretaceous at 3,707 feet, entered the Lower Jurassic which extended to the depth of 15,169 feet at which the bore was discontinued, thus proving a thickness of at least 11,462 feet of Lower Jurassic strata in this area. It is apparent that there is a marked thickening of the Mesozoic formations

from east to west in this area. The westernmost belt of the Carnarvon Basin is occupied by Tertiary strata, mainly limestones, which are well exposed in the Rough and Cape Ranges of the Exmouth Gulf area. These limestones, which range from Lower Miocene to Pliocene in age, total 1,200 feet in thickness and are discontinuously overlain by Pleistocene and Recent beds approximately 450 feet thick. Marine Tertiary sediments which are so well developed along the western margin of the basin extend as a thin discontinuous formation unconformably over the Permian beds of the eastern part of the basin, indicating that in Upper Eocene times the sea transgressed practically the whole of the Carnarvon Basin.

The sedimentary rocks of the Carnarvon Basin were affected by earth movements at various times. Even the youngest of the Tertiary rocks have been thrown into gentle folds which are significant so far as the search for oil is concerned because, in addition to having suitable conditions for the formation and preservation of oil, suitable structures are necessary for its concentration into local areas (oil 'pools'). So far as structure is concerned, the general picture of the Carnarvon Basin is the gentle westerly regional dip of the Palaeozoic sediments of the eastern half of the basin and the gentle dome and basin folding of the western half.

The *Perth Basin* (formerly called the Coastal Plain Artesian Basin) is a narrow elongated basin on the western border of Western Australia extending from Geraldton in the north to Cape Leeuwin in the south. At Geraldton it is thirty miles wide and is flanked both to the west and east by Precambrian crystalline rocks (mainly gneisses). The maximum width of the basin is approximately fifty miles at Watheroo and it narrows again to the south being approximately thirty miles wide in the sunland between Busselton and Augusta. At this southern end it is again flanked both to the east and west by Precambrian rocks. The surface of the basin is mostly covered by Recent sands but occasional outcrops of rocks as old as the Permian occur in places. The only evidence available regarding the structure, thickness and age of the sediments in the basin is that provided by geophysical surveys, some deep bores sunk in the search for oil and a number of water bores up to 2,400 feet deep in the metropolitan area. Gravity surveys indicate that there is a very considerable thickness of sediments, perhaps exceeding 30,000 feet, and it is probable that in this basin we have a complete succession from the Younger Proterozoic (*Cardup Group*), which outcrops along the Darling Scarp, to the Recent sands. Other than the Proterozoic of the Darling Scarp, the oldest sediments exposed are the gently folded Permian marine sediments of the *Eradu* and *Irwin River Basins* at the north end of the main basin. The Permian sediments of the Irwin River area have a total thickness of 4,000 feet and vary from marine glacial beds at the base (as in the Carnarvon and Canning Basins) through fossiliferous marine shales and limestones to lacustrine sandy sediments with coal seams in the upper part of the sequence. Marine and continental Jurassic limestones and sandstones outcrop east of Geraldton and Jurassic beds, overlain by Cretaceous chalks and greensands, occur near Gingin and Dandaragan. In the southern part of the Perth Basin the oldest rocks exposed (if we except the Permian of the separate minor *Collie Basin* which is situated well to the east of the Darling Scarp in a glacially-gouged trough) are the Cretaceous *Donnybrook Sandstones*.

In the vicinity of Perth, artesian bores to a maximum depth of 2,400 feet expose a sequence varying from Jurassic sandstone at depth, through Cretaceous and Paleocene shales. The *King's Park Shale* of Paleocene (older Tertiary) age is overlain by Pleistocene aeolian sandstones of the *Coastal Limestone Formation*, the base of which is approximately 100 feet below sea-level. There is therefore a big gap in the succession here between the Paleocene and Pleistocene. Many boreholes have been sunk in the north-central part of the basin in the course of oil search operations. Boreholes near the coast (at Jurien Bay and Beagle Ridge) struck Precambrian crystalline basement rocks at comparatively shallow depths of 3,360 feet and 4,860 feet. The sediments thicken further inland, as evidenced by the increasing depth to the Precambrian basement in Cadda No. 1 (9,002 feet), Woolmulla No. 1 (9,218 feet) and Arrowsmith No. 1 (11,220 feet). Very thick sedimentary sequences have been disclosed by Eneabba Bore No. 1 (which bottomed in Lower Triassic at 13,712 feet) and Gingin No. 1 (in Lower Jurassic at 14,908 feet).

Some deep wells have been drilled to the south of Perth, namely Pinjarra No. 1 which bottomed in Upper Triassic sandstone at 15,001 feet; in the far south (near the south coast), Sue No. 1 which encountered Precambrian granulites at 10,021 feet; near Perth, Cockburn No. 1 which was abandoned at 10,020 feet in Lower Jurassic sandstone; Whicher No. 1, near Busselton, which reached a depth of 15,266 feet in Permian sandstone before being abandoned; and Blackwood No. 1, abandoned at 10,939 feet in Permian sediments. The first offshore well in the Perth Basin (Quinns No. 1), spudded in on 10 October 1968 at a location approximately twenty miles north of Rottnest Island, was drilled to a depth of 7,248 feet without finding hydrocarbons. Some oil was found in a second offshore well (Gage Roads No. 1), drilled to a depth of 12,009 feet, approximately nine miles north-west of Rottnest Island.

Oil search operations in the Perth Basin have led to the discovery of significant oil and gas in the vicinity of Dongara near the northern end of the Basin and gas at Gingin, about fifty miles north of Perth. These discoveries have now been proved as gas fields. The other materials of economic significance in the Basin are coal, artesian water, limestone from the Pleistocene Coastal Limestone which is used as a source of lime and as building stone ('Cottesloe Stone'), and sand for building material. In addition, the Coastal Limestone contains picturesque caves of tourist attraction such as those of Yanchep, Yallingup and Margaret River.

The only evidence of igneous activity in the Basin is the Cretaceous basalt of the sunland between Bunbury and Cape Gosselin on the south coast.

Very little is known about the structure of this basin. It is bounded to the east by a large fault or monoclinial fold. The evidence available indicates that the main structural character of the deeper part is a regional dip to the east (of  $15^{\circ}$  to  $20^{\circ}$ ) traversed by north-south trending faults with down-throws to the west. There is an unconformity (Upper Jurassic to Lower Cretaceous) at a depth of approximately 2,000 feet above which the Cretaceous and Tertiary sediments are almost horizontal.

The *Eucla Basin* occupying the Nullarbor Plain, in the south-eastern corner of the State is occupied at the surface by marine fossiliferous Middle Tertiary (Miocene) limestones with a marginal belt of Lower Tertiary (Eocene) limestones. The Tertiary rocks lie on sandstones and shales of probable Cretaceous age, which in turn overlie the Precambrian crystalline rocks. Little is known of the details of the stratigraphy and structure of the Eucla Basin since the beds are very flat-lying and have only been penetrated by water bores in a few places such as Madura near the coast and Loongana on the Trans-Australian Railway. The Madura bore is artesian but bores along the Trans-Australian Railway have only yielded sub-artesian water (*i.e.* the water will rise under pressure only part of the way to the surface). The oil prospects of this basin are poor because of the comparatively small thickness (2,000 feet) of the sediments and the absence of suitable folded structures to form oil traps.

The *Collie Coal Basin*. Of the minor basins and isolated occurrences of post-Proterozoic sediments, Collie, since it is the only operating coalfield in Western Australia, is the only one which will be considered here. It is situated approximately 100 miles SSE. from Perth, and has an area of about 100 square miles. Actually it is made up of two basins separated by a sub-surface granitic ridge. It is composed of sandstones and shales with interbedded coal seams and is surrounded by Precambrian rocks. The coal measures, of Permian age, are of the order of 2,000 feet in thickness of which approximately 130 feet is coal. The actual contact between the Permian coal measures and the Precambrian granitic basement has nowhere been seen at the surface but has been encountered in deep drill holes in various parts of the Basin. Such drill holes reveal that Permian mudstone containing granite pebbles lies on an ice-planed surface of the Precambrian granitic rocks. This suggests that the Collie Basin, formerly considered to be a block of the Permian downfaulted into the Precambrian basement, is actually a glacially-gouged trough formed by terrestrial glaciation in the Permian and since filled with Permian lacustrine sediments. Coal occurs at three horizons and the seams, which average six

feet in thickness, persist over fairly long distances. From the associated plant fossils these coal measures appear to be comparable in age with those of the upper part of the Permian sequence at the Irwin River near the northern end of the Perth Basin.

### The Superficial Deposits

Over a great part of the State fresh rock outcrops are comparatively sparse. Most of the country is covered by highly-weathered rocks, laterite, drift sand, soils, and, in the salt lake country, by thin evaporite deposits.

*Laterite.* In the southern half of the State the remnants of the Darling Plateau are covered by a thin layer up to ten or fifteen feet thick of a reddish-brown rock composed of spherical pebbles tightly or loosely cemented together by a lighter-coloured earthy matrix. This material in its poorly consolidated state is popularly referred to as 'iron-stone gravel' and when strongly cemented as 'ironstone'. This rock, called laterite, although it covers large areas, is purely superficial and wells or bores sunk in it pass within a few feet into highly weathered country rock which may extend down for distances up to 100 feet before encountering fresh unweathered rock. This laterite crust and the underlying highly weathered country rock were developed on a gently undulating surface during a period of warmer, more humid, climatic conditions. These tropical conditions probably existed in Late Tertiary (Pliocene) times when a great part of Western Australia had been reduced by long-continued erosion to a peneplain lying close to sea-level, or soon after, when this peneplain had been uplifted to form the *Darling Plateau*. This uplift, judged by the elevation of the laterite-capped hills and the occurrence of fossiliferous marine Eocene sediments 900 feet above sea-level at Norseman, was of the order of 1,000 feet. On the Great Plateau, remnants of this Darling Plateau are evidenced by the table-topped hills so characteristic of much of the Plateau country. The significance of the laterite profile and the soils developed from the laterite and associated weathered rocks has already been mentioned. Economically, the laterite is important for road-making materials and in a few places (such as Wundowie) as an iron ore. The main constituents of the laterite are the insoluble products of intense rock weathering—iron oxide, alumina and silica. In many places the alumina content is sufficiently high to call them bauxites. Bauxites are the main source of aluminium, and the bauxitic laterites of the Jarrahdale area in the Darling Range near Perth are being exploited as aluminium ore.

The mid-Tertiary land surface of the southern half of Western Australia on which the laterite profile was developed at a time when this country was subjected to a tropical climate extends into the northern part of the State. In the Hamersley Iron Province of the North-West Division this old land surface truncated the Lower Proterozoic banded iron formations of the Hamersley Group. At and below this old land surface, (the *Hamersley Surface*) which can be traced without tectonic break from sea-level to elevations of 4,000 feet, there was a secondary concentration of the iron of the Lower Proterozoic rocks resulting in extensive rich iron-ore deposits which make this area one of the richest iron provinces in the World.

In the far south-west of the State sub-surface hard pan formations consisting of ferruginous sandstone are a potential source of low-grade iron ore.

*Soils and drift sands.* Western Australia, an area of 975,920 square miles extending from lat. 13° 44' S. to lat. 35° 08' S., although having little variety in its broad physical features, has very considerable variation in climates from the tropical areas of summer rainfall in the north through a central and inland province of low rainfall to the temperate areas of winter rainfall in the south. Moreover, throughout this enormous area there is very considerable variation in the nature of the country rocks. The nature of the soils developed is dependent on these two factors—climate and parent rock—so it will be apparent that there will be very considerable variation in the soils over this extensive area. L. J. H. Teakle has recognised the following major soil zones of Western Australia:

1. Grey, yellow and red podsolised, or leached, soils of the temperate sclerophyll forests.
2. Red-brown earths of the eucalyptus-acacia woodlands.
3. Grey and brown calcareous, solonised soils of the low rainfall eucalyptus woodlands—('mallee' soil zone of Prescott).
4. Red and brown acidic soils of the acacia semi-desert scrub—mulga, etc.
5. Brown acidic soils of the spinifex semi-desert steppes of the North-West.
6. Pinkish-brown calcareous soils of the Nullarbor Plain desert shrub steppes.
7. Pinkish-brown calcareous soils of the acacia semi-desert scrub, mallee and salt bush-blue bush zone.
8. Brown soils of the tropical woodlands, savannahs and grasslands.
9. Red sands of the central desert sandhills—spinifex with desert acacias, desert gums and mallees (*Eucalyptus spp.*).

Each of these major soil zones may be subdivided into one or more soil regions and the reader is referred to a paper 'A Regional Classification of the Soils of Western Australia, by L. J. H. Teakle (*Jour. Roy. Soc. West. Aust. XXIV*, pp. 123-95) for details concerning the soil characteristics of these various zones and regions.

There are considerable areas of Western Australia covered by drift sand which may be in the form of parallel red sand dunes or, in the southern part of the State, extensive sandy plains. The latter have been generally considered to be residual from the weathering of granite. These sand plains are often underlain by lateritic material and they probably represent the leached zone of the laterite profile. The youngest of the drift sand deposits are the coastal sand dunes.

Coastal sand deposits are of considerable economic importance. At various places along the south and west coasts there are beach sand deposits in which there is a natural concentration of heavy minerals such as zircon, monazite, xenotime, rutile and ilmenite. Such deposits are at present being exploited at Capel and Bunbury for their ilmenite content, which is valuable because of its low chrome content. The other heavy minerals such as zircon, monazite and xenotime are also being exported overseas.

*Salt lake deposits.* These, together with the coastal sand deposits, represent the youngest of the geological formations developed—indeed they are in course of formation at the present time. They are evaporite deposits resulting from the evaporation of lake waters in the areas of internal drainage. Soluble salts produced by rock weathering are leached out by rain and running water and transported by streams to these lakes. During the long dry summers most of these lakes dry up and the soluble salts are deposited, yielding accumulations of gypsum and common salt. In a few of these inland lakes hydrated potassium aluminium sulphate (alunite), which is a valuable source of potash for fertilisers, has been formed but its actual mode of formation has not yet been satisfactorily explained.

Valuable potash reserves occur at Lake MacLeod, north of Carnarvon. This 800-square mile coastal lake contains brines saturating the mud of the lake floor which are rich in potash salts which are the last salts to crystallise on the evaporation of sea water. It is expected that these deposits, which will be Australia's only domestic source of potash, will soon come into production and, within a few years, produce the equivalent of Australia's present consumption of 200,000 tons per annum.

Solar salt (sodium chloride) is at present being produced at several localities in the North-West, such as Port Hedland, Exmouth Gulf and Shark Bay, where a combination of low-lying flat topography and shallow marine embayments (such as Useless Loop in Shark Bay) with hot dry climate resulting in high evaporation are the ideal conditions for crystallisation of sea water salts. The production of such solar salt is expected to amount to 2 million tons annually. In localities such as Shark Bay, where the waters are abnormally saline, other rocks—limestones—are in course of formation. The Shark Bay area has

proved a very fruitful area for research on the formation of various limestones and the information being derived from the study of these presently forming rocks has helped in the interpretation of the significance of such deposits which formed in past geological times.

### Conclusion

From the foregoing summary of the geology of Western Australia we see that, although nowhere do we find the complete geological succession, somewhere in the State there are deposits representative of every Period. The geological history of Western Australia begins with the basaltic igneous activity of the Early Archaeozoic some 3,000 million years ago, followed by sedimentation, intense mountain building activity and associated granitisation and granite intrusions. In post-Archaeozoic times there is a record of sedimentation throughout all the main geological periods. Igneous activity ceased in the Lower Palaeozoic and only re-occurred during the late Mesozoic, yielding the basaltic lavas of the far South-West and the volcanic rocks of the West Kimberley. By mid-Tertiary times much of Western Australia had been reduced by denudation to a gently undulating peneplain land surface on which, under tropical climatic conditions, there was an extensive development of laterite which in places constitutes valuable bauxite and iron-ore deposits. Geological processes are continuing and at the present day rocks and soils are still in the process of formation.

### The Mineral Deposits

In the foregoing pages mention has been made in various places of the mineral deposits on which the development of Western Australia has been so dependent. These deposits are directly related to the geology—the nature of the rocks and their structural relationships—of the areas in which they occur. One would not, for example, look for coal, oil or natural gas in the crystalline Precambrian Shield, nor for gold or nickel deposits in the sedimentary basins that have been described. Moreover, in spite of the fact that the nickel deposits occur in Older Precambrian rocks, not all of these rocks are potential hosts for nickel deposits—they are only likely to occur in the ultrabasic rocks which constitute a very small fraction of 1 per cent of the Older Precambrian rocks. The tabulated statement on page 33 summarises the sequence of events represented in the geological history of Western Australia and the mineral deposits associated with each. This table, read in conjunction with a geological map of any area, will indicate the economically important deposits which could possibly occur in that particular geological environment.

### Current Geological Investigations in Western Australia

While much is known about the geology and mineral resources of Western Australia, there is still much to be learned. The foregoing summary account of the geology of Western Australia is based on work carried out in the past, which has increased in tempo during the last decade because of the discovery of important oil, gas and metal-bearing mineral deposits.

At present, geological work in Western Australia is being carried out by the following bodies.

1. The Geological Survey Branch of the Department of Mines of Western Australia, which is engaged in regional geological mapping, special investigations of varied character concerned with groundwater resources, mineral deposits, and engineering geology problems, and problems arising daily, which require geological advice to the public. The major results of the Geological Survey's operations are published annually in the Annual Report of the Department of Mines of Western Australia, in Bulletins issued at irregular intervals and in four-mile scale geological maps with explanatory notes, which are also issued at irregular intervals.

2. The Geology Department of the University of Western Australia. Research projects are undertaken by members of staff and research students, varying from mapping and petrological-mineralogical projects concerned with the Precambrian rocks which make up the greater part of the State, through palaeontological work on rocks from the various sedimentary basins, to studies of present-day marine sedimentation. The results of such investigations are published in various scientific periodicals, both in Australia and overseas.
3. Oil exploration companies. Such companies have carried out geological and geophysical surveys of the various sedimentary basins and some offshore areas, and are presently engaged in deep-drilling programmes. Attention is now being given to drilling in the offshore continental shelf areas of the Canning and Perth Basins.
4. Mineral exploration companies. Following the discovery of important nickel deposits at Kambalda and Scotia near Kalgoorlie, and, subsequently, at Mount Windarra near Laverton, many Australian and overseas exploration companies are engaged in base metal exploration, particularly in the Norseman to Laverton belt of Precambrian greenstones.

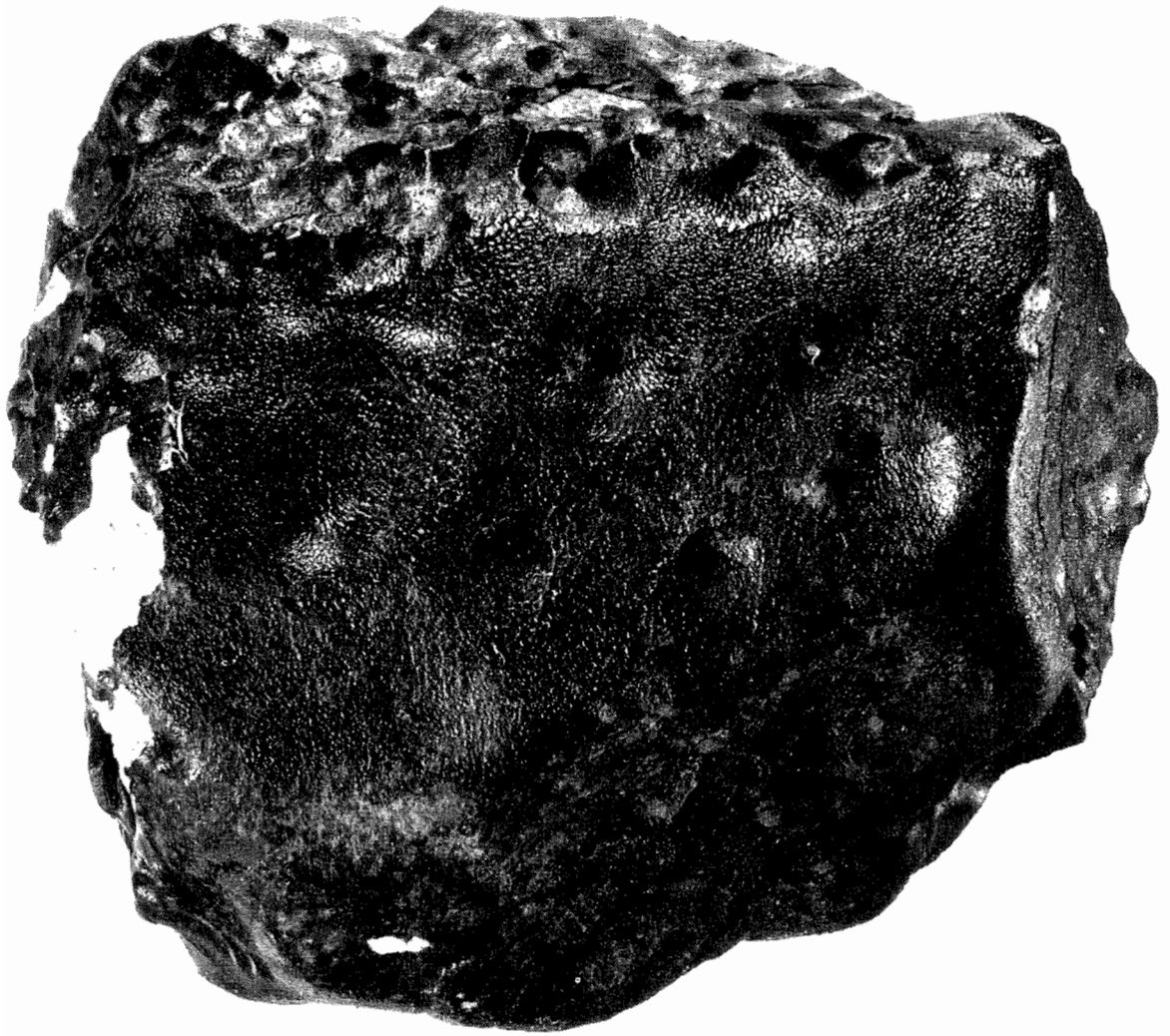
The continued efforts of these institutions and exploration companies are daily adding much to our knowledge of the geology of the western third of the Australian continent.

### Seismicity of Western Australia

It had been generally considered that Western Australia was a stable block free of seismic activity in the form of earthquakes but this idea was shattered by the occurrence, on 14 October 1968, of a major earthquake centred near Meckering, eighty-four miles inland from Perth. This earthquake completely wrecked the town and most farm houses in the vicinity; alarmed numerous residents of Perth; caused minor damage to many buildings in the Perth Metropolitan Area; was felt within a radius of about 400 miles; and made people realise that Western Australia was not as stable as was previously thought. Other earthquakes, such as the Meeberrie earthquake of 29 April 1941 (the most severe earthquake yet recorded on the Australian continent), have tended to pass without much notice since they either occurred in less densely populated areas or were of low intensity. Records show (according to Everingham in a report of the Bureau of Mineral Resources, Geology and Geophysics, *Seismicity of Western Australia*) that there were forty-seven Western Australian earthquakes of local magnitude greater than 3.5 (Richter scale) recorded in the period August 1959 to June 1965, and 210 less intense earthquakes during the same period.

Most of the recorded minor earthquakes have originated in the Yandanooka-Cape Riche belt of country about 300 miles long by thirty miles wide, which lies just within the western margin of the crystalline Precambrian Shield. Indeed, all except five of the 210 recorded minor earthquakes of the period 1959 to 1965 originated in this narrow belt which is parallel to the regional geological structure of the older Precambrian rocks of the southern half of Western Australia. It was in this belt, at Meckering, that the severe earthquake of 14 October 1968 had its origin.

The major fault structure of Western Australia is the Darling Fault which forms the western margin of the Precambrian Shield and the eastern margin of the Perth Basin. It extends meridionally from the south coast for some 600 miles. It is considered that the total west block downward movement on this fault has been of the order of 30,000 to 40,000 feet. In spite of the fact that there is a major negative gravity anomaly over the Perth Basin causing this region to be isostatically unbalanced, no earthquakes have been recorded which originated on this fault—indeed there is no geological evidence of any movement on the Darling Fault for at least 1 million years. The October 1968 movement on the Meckering Fault indicates that the Precambrian Shield is in a state of compression and would support a hypothesis that the Darling Fault, instead of being a westerly-dipping structure with downthrow to the west, is more probably an easterly-dipping compression



Photograph by K. C. Hughes

#### PLATE I—THE MILLBILLILLIE METEORITE

The *Millbillillie* meteorite, seen to fall near Wiluna in 1960, but which was not recovered until 1970. It illustrates several diagnostic characteristics of *stony meteorites*, including the thin coating of black glass formed by melting of the exterior during entry into the upper atmosphere, and the pockmarked or 'thumb-printed' surface. The light grey interior of this meteorite can be seen on the left, where the black coating or crust has broken away. The scale shown is in millimetres.

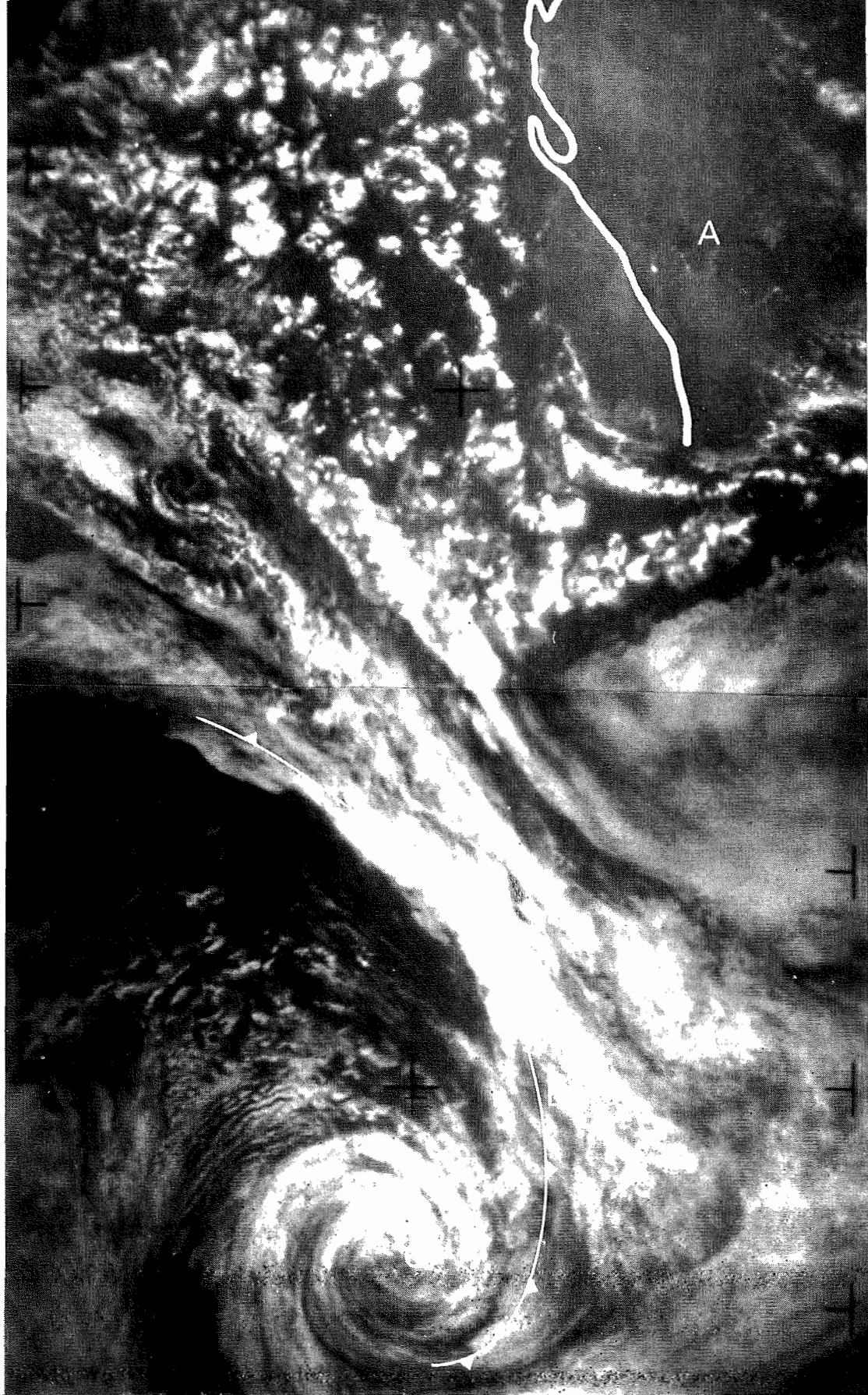


PLATE 2—ESSA 8 SATELLITE PHOTOGRAPH

Television picture mosaic showing a southern low (C) and an associated cold front (B) approaching the Western Australian coast on 30 October 1972. See letterpress on pages 52-3.

*Photograph by courtesy of Bureau of Meteorology*

94°E. 104°E.

114°E.

124°E.

134°E.

20°S.

30°S.

40°S.

94°E. 104°E. 114°E.

124°E.

134°E.

144°E.

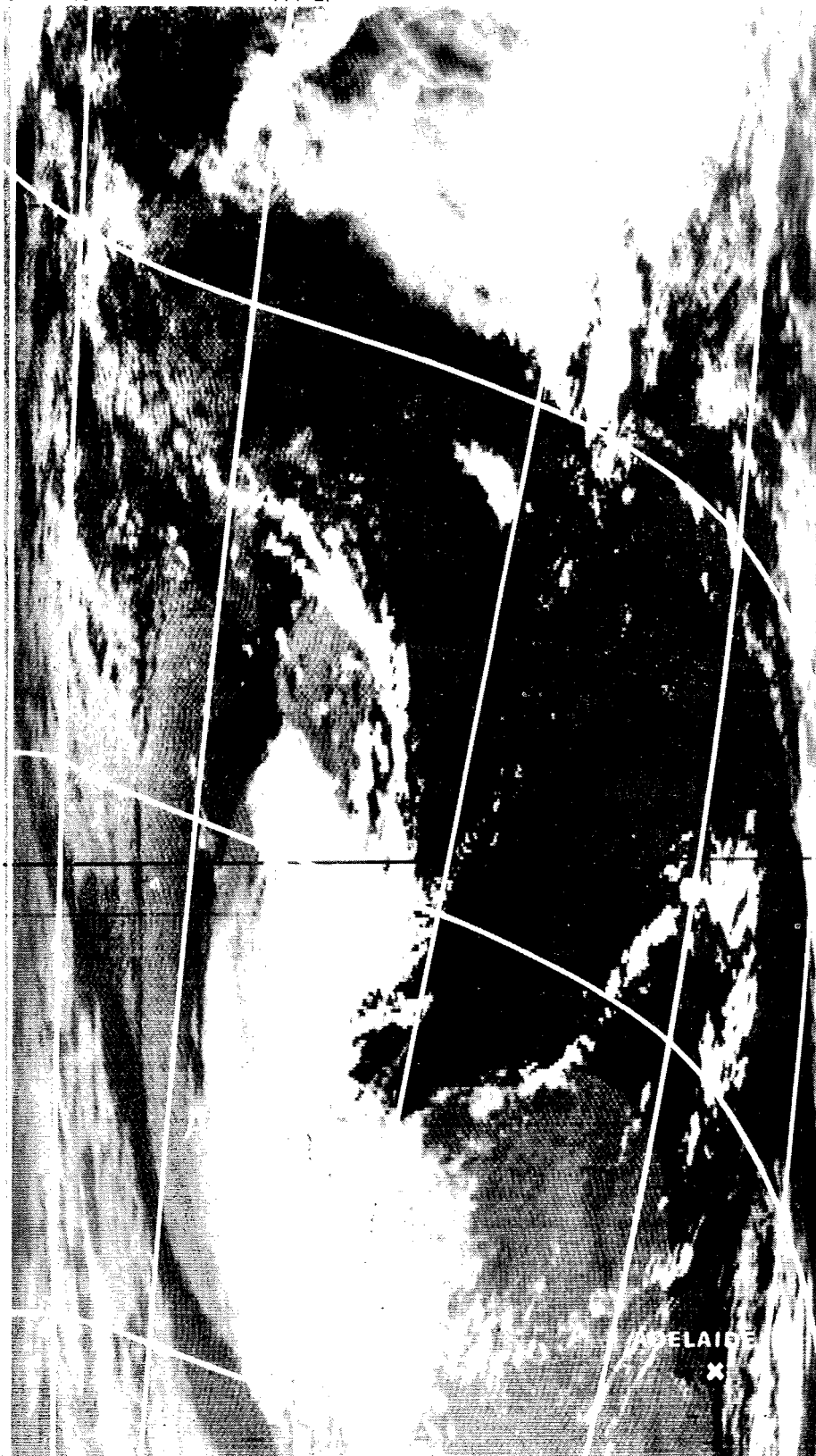


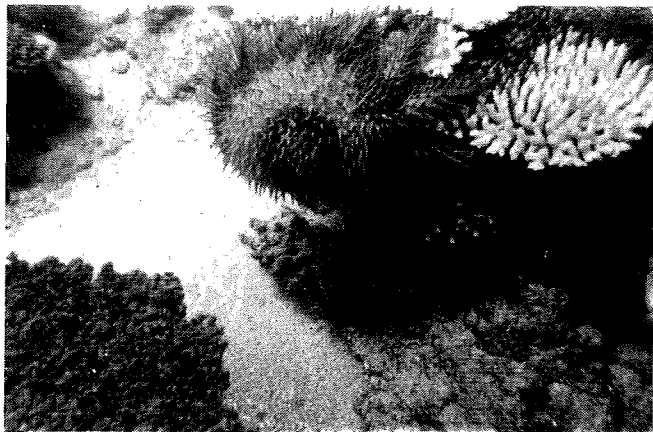
PLATE 3—INFRA-RED RADIOMETER PICTURE

High resolution infra-red photograph, obtained from a satellite scanning radiometer, showing the cloud top temperature field. Cold, high clouds are white and the warmer land surface is shown black. The distortion is produced by this scanning technique. See letterpress on page 53.

*Photograph by courtesy of Bureau of Meteorology*



Above—Operating at a depth of twenty feet, a diver is shown taking a starfish from the coral reef and placing it in a hand scoop for transport to the surface.



Above—After eating a section of the coral, a starfish is seen moving to shelter beneath plate coral.

Below—Surface operations. On being brought to the surface, each starfish is measured and distinctively stained to study migration and growth.



Below—Kendrew Island. In the background can be seen the line of breakers marking the coral reef where diving operations were conducted.



*Photographs by R. W. George, Western Australian Museum*

#### PLATE 4—CROWN OF THORNS STARFISH RESEARCH IN WESTERN AUSTRALIA

Reproduced above are photographs taken during a recent study project by a research team from The Western Australian Museum at Kendrew Island in the Dampier Archipelago off the north-west coast of Western Australia. The starfish are causing some concern to the Queensland Government by the threat they pose to the Great Barrier Reef. Three further visits to Kendrew Island by the five-member Museum research team are planned for 1973.

structure with the east (continental) block thrust up over the Perth Basin. This would explain the observed stability of the Perth Basin which should, according to the gravity measurements, be a very unstable area. Instead of rising, as it should because of the major negative gravity anomaly, it is being held down by the overthrust continental block.

As has been indicated, the Meckering earthquake has drawn attention to the possibility of earthquake occurrence in south Western Australia and for the necessity to consider this factor when designing large structures. Calculations have been made from records during the period 1960 to 1969 to give an approximate idea of the order of earthquake frequency in the south-west corner of the State. These have indicated that an earthquake of magnitude greater than 6.5 would occur once every fifty years, and one of magnitude greater than 5.5 every ten years, but these figures are thought to be pessimistic because records kept since 1840 suggest a lower average frequency and the data used for these calculations are swamped by the foreshocks and aftershocks of the Meckering earthquake.

## GEOLOGICAL EVENTS AND MINERAL DEPOSITS IN WESTERN AUSTRALIA

Era	Main geological events	Economic mineral deposits
KAINOZOIC	15. Weathering and erosion (Present day) ....	Beach sand deposits, salt, gypsum, sands and clays, peat, alluvial deposits (gold, tin, etc.)
	14. Sedimentation (Pleistocene and Recent) ....	Ilmenite and other black sand minerals, limestone
	13. Peneplanation (mid-Tertiary) and laterite formation	Bauxite
	12. Sedimentation (older-Tertiary) ....	Iron and manganese ores Alluvial tin and gold Clays Artesian water
MESOZOIC	11. Sedimentation (with basalt outflows in Cretaceous)	Artesian water Oil and gas Coal Basalt for aggregate stone
PALAEOZOIC	10. Sedimentation, earth movements, periods of erosion	Coal Oil and gas
PROTEROZOIC	9. Basic igneous intrusions ....	Road metal (blue metal) Lead, zinc and copper
	8. Sedimentation and minor granitic magma intrusions	
	7. Chemical sediments (banded iron formations)	Iron ore and blue asbestos (in Hamersley basin)
	6. Pegmatite and quartz vein formation from end-stages of granitic intrusions	Tin, tantalum, tungsten, beryllium, lithium minerals Gold and silver in early Archaean country rocks (1 and 2)
ARCHAEOZOIC	5. Intrusion of granitic magma (2,700 million years ago)	Aggregate and building stone
	4. Granitisation—conversion of all pre-existing rocks into granitic rocks Contemporaneous with intense folding, fracturing and metamorphism of pre-existing rocks	Aggregate and building stone
	3. Intrusion of basic magma forming stratiform layered basic/ultrabasic igneous complexes	Nickel, copper and chromium in ultrabasic rocks
	2. Sedimentation with minor periods of volcanic activity	
	1. Eruption of submarine basaltic lavas and chemical deposition of banded ferruginous cherts	Iron ore

## WESTERN AUSTRALIAN METEORITES (1)

Meteorites are solid bodies of crystalline matter that have fallen to the Earth's surface from outer space. Their entry at high cosmic velocities into the upper atmosphere causes spectacular light and sound effects detectable for considerable distances from the actual point of fall; generally, an intense fireball accompanied by a luminous dust cloud in the sky, and thunderous or explosive noises. Not all falls are witnessed, of course, but a variety of characteristics allows scientists to recognise meteorites found by chance lying on the ground.

The study of meteorites is an important branch of science. Apart from lunar rocks returned by recent American and Russian space missions, they represent our only samples of extraterrestrial matter. Accordingly, knowledge of their chemical and mineralogical composition is vital to modern concepts of the nature and origin of the solar system. They have been examined carefully, but so far without success, for evidence of life elsewhere in the cosmos. Studies of their external shape, which is greatly modified by atmospheric entry, have contributed to the design of space capsules capable of successful re-entry.

A total of ninety-three meteorites is currently known from Western Australia. On an areal basis, this represents a recovery rate slightly more than double the world average, a perhaps surprising fact in view of the brief history and sparse population of the State. Several factors probably account for this excellent record, including the generally arid climate which favours preservation and leads to an abundance of field environments where meteorites are uncommonly conspicuous on the land surface. There has also been a high level of interest in meteorites among local scientists and the lay public, including rural workers who have a close interest in natural phenomena on their land, and prospectors who by habit give careful scrutiny to rocks of unusual appearance.

Our first recorded discovery was of two masses of iron, the *Youndegin* meteorites, near Quairading in 1884. An average of one additional meteorite about every two years was then brought in until the end of the first half of this century, since when the rate accelerated sharply. Improved communications and the intensive publicity associated with space research since 1950 were perhaps partly responsible for this increase, but much credit for the striking climb in recoveries during 1965-72 must be assigned to the Carlisle family, who found many meteorites while trapping rabbits on the Nullarbor Plain. In following up some of their discoveries in this ideal hunting ground, Mr W. H. Cleverly of the School of Mines of Western Australia located no fewer than four distinct meteorites within a radius of 5 kilometres, one of which was an extensive shower yielding almost 800 individual fragments. Increased geological activity in the Eastern Goldfields has also contributed: two new meteorites were discovered during regional mapping by Department of Mines Geological Survey staff, and another three were collected during nickel exploration by company personnel.

Three main classes of meteorite are recognised. *Irons*, composed primarily of nickel-iron alloy, are characterised by their density and metallic character. *Stones* are made up largely of magnesium-rich silicate minerals with varying amounts of nickel-iron, and are less easy to distinguish from terrestrial rocks although their thin surface coating of black glass, formed during atmospheric entry (dull brown when weathered), and their pock-marked or thumb-printed external appearance (as illustrated in Plate 1) are helpful criteria. *Stony-irons* are less abundant, and contain roughly equal amounts of metal and stony material. Western Australian meteorites can be divided into 31 irons, 57 stones and 5 stony-irons. Among these there is a remarkably high proportion of rare or unusual varieties, which have attracted a great deal of international scientific attention.

Two unrelated stony meteorites from the Nullarbor Plain, *North Haig* and *Dingo Pup Donga* (meteorites are named after nearby localities), contain small amounts of diamond formed at high pressures caused by high velocity collisions in outer space. Only three other such occurrences are known throughout the world. Two of the stony-irons, *Bencubbin* and *Mount Padbury* (from near Meekatharra), contain several different kinds of stony material, and have proved especially important in scientific studies concerned with

(1) Contributed by Dr R. A. Binns, Department of Geology, University of Western Australia.

relationships between various meteorite types on their celestial parent bodies. A recent recovery from near Wiluna, the *Millbillillie* meteorite, illustrated facing page 32, is the third largest example of its kind known. It shows a quite unique internal structure which resembles certain samples returned by the Apollo missions, but at twenty kilograms (44 lb) it is much larger, and consequently more informative, than any particular lunar specimen. Subtle differences in composition suggest that it did not come from the surface of the Moon itself, but from a very similar environment in the solar system.

Four of the Western Australian meteorites, and possibly a fifth, were actually seen to fall. Of these, the *Wiluna* arrival at 10.46 p.m. on 2 September 1967, was undoubtedly the most spectacular event. The impressive fireball and explosive noise were observed by many residents and visitors gathered in Wiluna for Annual Race Meeting festivities. A recovery expedition from The Western Australian Museum located no fewer than 500 individual fragments weighing altogether in excess of 150 kilograms (330 lb), and a similar amount probably remains in private hands.

Under the Western Australian Museum Act of 1969, legal ownership of most new meteorites found in this State is vested in the Museum, which welcomes information on possible discoveries and offers recompense for authenticated recoveries. Further information on Western Australian meteorites can be found in the catalogues published by the Museum.

## FURTHER SOURCES OF INFORMATION ON THE GEOLOGY OF WESTERN AUSTRALIA

### Physical features

JUTSON, J. T. 'The physiography (geomorphology) of Western Australia'. *Geol. Surv. West. Aust. Bull.* 95, 1934.

### General geology

BROWN, D. A. and others. *The Geological Evolution of Australia and New Zealand*. Pergamon Press, Oxford, 1967.

CLARKE, E. de C. and others. *Elements of Geology for Australian Students*. University of Western Australia Press, Nedlands, 1967.

MCWHAE, J. R. H. and others. 'The Stratigraphy of Western Australia'. *J. Geol. Soc. Aust.*, vol. 4, pt 2, 1958, pp. 1-161.

### Geology of specific areas

GEOLOGICAL SURVEY OF WESTERN AUSTRALIA. *Annual Reports, Bulletins and 4-mile geological maps with explanatory notes*.

COMMONWEALTH BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS. *Bulletins and Records*.

### Meteorites

RIDE, W. D. L. and NEUMANN, A. (ed.). 'Catalogue of Western Australian meteorite collections'. *Special Publ. W. Aust. Mus.*, No. 3, Perth, 1965.

### Minerals

SIMPSON, E. S. *Minerals of Western Australia* (3 volumes). Government Printer, Perth. Vol. 1, 1948, vol. 2, 1951, vol. 3, 1952.

### Ore deposits

MCANDREW, J. *Geology of Australian Ore Deposits*. 2nd ed. Eighth Commonw. Min. Metall. Congress, Melbourne, 1965.

GEOLOGICAL SURVEY OF WESTERN AUSTRALIA. *Mineral Resources Bulletins*.

### Seismicity

EVERINGHAM, I. B. 'Seismicity of Western Australia'. *Commonw. Bur. Min. Resour. Geol. Geophys. Report* 132, 1968.

## *Chapter II—continued*

### **Part 2—Climate and Meteorology<sup>(1)</sup>**

*(Contributed by the Western Australian Regional Office of the Bureau of Meteorology)*

Western Australia is the largest State in the Commonwealth, extending from latitude 13° 44' S. to 35° 08' S., and from longitude 113° 09' E. to 129° E. It stretches a distance of about 1,500 miles in a north-south direction and about 1,000 miles west-east. A little more than one-third of the State lies within the tropics, while the remainder extends southward to the temperate zone.

Because of its large size and its latitudinal position, Western Australia has entirely different climates in its northern and southern parts, while in the central regions there is a gradual change from the tropical climate of the north to the typical Mediterranean climate of the south.

Most of the State is a plateau between 1,000 and 2,000 feet above mean sea-level and there are no outstanding mountain ranges. Where the edge of the plateau forms the Darling Range along the southern part of the west coast, it exerts a marked influence on the rainfall, causing a rapid increase from the coastal plain to the higher land. Elsewhere the effect of topography is less marked and its main influence is seen in the general decrease of rainfall with increasing distance from the coast.

#### PRESSURE SYSTEMS

Weather during the year is controlled largely by the movement of the anticyclonic belt (high pressure systems with anti-clockwise winds), which lies in an east-west direction across the continent for about six months of the year.

In winter this system moves northward, bringing clear skies with fine sunny days and easterly winds to the tropics. With this northward movement, westerly winds on the southern side of the anticyclones extend over the southern part of the State, bringing with them cool cloudy weather and rain. In mid-winter the northern fringe of the 'Roaring Forties' extends to Western Australia and there are frequent westerly gales in the south coastal belt.

These westerly winds are maintained by a series of depressions (low pressure systems with clockwise winds), which move eastward well south of the Western Australian coast, and others which originate in the Indian Ocean and move south-eastward past Cape Leeuwin. The extent to which westerlies affect the State depends largely on the intensity and the position of these depressions.

Towards the end of winter the anticyclonic belt moves southward, and the westerlies are confined more to the lower south-west and the south coastal districts. By summer the anticyclonic belt has moved so far south that its axis is off the south coast and easterly winds prevail over most of the State.

During this summer period the midday sun is at a high elevation in the tropics and the continual heating leads to the development of a monsoonal depression over this region. Wind circulation round this system causes easterlies on its southern or inland side, but in the coastal districts north-east from Onslow, and in parts of the Kimberley, westerlies prevail. Winds in both the north and the south of the State are then in the opposite direction to those prevailing during the winter.

As the sun moves northward again the anticyclonic belt follows it. The monsoonal depression over the tropics dissipates and westerlies again gradually extend northward to the southern part of the State.

---

<sup>(1)</sup> See *Appendix* for additional information contained in earlier issues of the Year Book.

During the northern 'Wet' season (from about December to March), occasional cyclones, known locally as 'willy willys', bring strong winds and rain to the tropics. They originate generally in the Timor Sea or off the north-west coast and often move first in a south-westerly direction parallel to the coast and later in a south-easterly direction.

They frequently move inland between Broome and Onslow but occasionally travel further westward before curving to the south-east and moving inland over the west coast. Others fade out at sea without ever crossing the coast. Those that move inland usually commence to dissipate soon after crossing the coast, but occasionally they move right across the State, passing into the Southern Ocean and moving off towards Tasmania.

These storms are often extremely violent and have on occasions almost completely wrecked towns on the north-west coast, while a cyclone which struck a pearling fleet off the Eighty Mile Beach in 1887 caused the loss of twenty-two vessels and 140 lives.

However, despite the damage which they cause, the storms are of great benefit to the pastoral regions on account of the heavy and widespread rain which generally accompanies them. The heaviest fall ever recorded in one day in Western Australia, 29.41 inches, was received at Whim Creek from a cyclone in 1898.

### RAINFALL

The moist rain-bearing winds in this State are in general from a westerly direction. The easterlies, having come from the dry inland parts of Australia, usually bring fine weather and clear skies.

Because of this the highest rainfall occurs in the winter months in the south of the State, and in the summer months in the north. In between these areas there is a gradual change from one rainfall regime to the other.

From the map on page 41, which shows the wettest six-monthly period of the year, it can be seen that the summer rainfall area extends southward from the Kimberley to the Trans-Australian Railway, where there is a rapid change to the winter rainfall regime of the south coast. However, the difference between summer and winter totals decreases southward, and the southern part of this region is one of almost uniform average rainfall.

Proceeding northward from the winter rainfall area of the south-west of the State, the wet period occurs earlier during the year. Across a belt Carnarvon-Menzies-Eucla, there is a more rapid change, and this belt divides the winter rainfall area from that which receives most of its rain in the first six months of the year. Further north, the change is more gradual but continuous and in the Kimberley most of the year's rainfall is received in the summer months which, in the southern parts of the State, are the driest of the year.

The mean annual rainfall for the State is shown on the map on page 42 and on the map inside the back cover of the book.

The following table shows the average rainfall and number of wet days, the highest and lowest monthly totals, and the highest daily fall for various centres.

RAINFALL AT REPRESENTATIVE CLIMATOLOGICAL STATIONS  
(Stations are arranged from north to south in three groups: Coastal, Wheat Belt and Other Inland)

Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
<b>COASTAL</b>													
<i>Wyndham</i> (23 feet)†—													
Rainfall—Average (points)	749	649	470	109	30	20	17	2	8	45	185	434	2,718
Highest (points)	2,824	2,058	1,758	2,027	347	473	524	84	306	334	558	1,150	5,634
Lowest (points)	51	54	0	0	0	0	0	0	0	0	1	28	1,438
Highest one day (points)	1,212	590	1,250	1,732	247	445	338	42	306	225	335	434	1,732
Wet days—Average number	13	12	9	3	1	1	1	0	0	2	6	10	58
<i>Broome</i> (37 feet)†—													
Rainfall—Average (points)	410	559	299	128	137	66	35	8	7	5	34	115	1,803
Highest (points)	3,256	2,358	2,360	1,019	700	973	283	374	86	48	1,095	1,449	4,307
Lowest (points)	11	6	0	0	0	0	0	0	0	0	0	0	544
Highest one day (points)	1,400	1,191	1,062	714	470	563	216	147	82	28	553	827	1,400
Wet days—Average number	10	10	7	3	2	2	2	0	1	1	1	5	44

† Height above mean sea-level.

RAINFALL AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
<b>COASTAL—<i>continued</i></b>													
<b>Port Hedland (25 feet)†—</b>													
Rainfall —Average (points)	193	365	176	74	130	58	46	17	4	6	9	86	1,164
Highest (points)	1,969	1,432	1,716	1,386	873	696	384	584	99	129	336	1,023	4,013
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	125
Highest one day (points) .....	1,524	955	1,113	469	638	560	185	364	85	127	304	900	1,113
Wet days—Average number	4	6	4	2	3	2	2	1	1	1	1	1	27
<b>Roebourne (40 feet)†—</b>													
Rainfall —Average (points)	247	240	283	124	116	102	56	21	6	3	7	38	1,243
Highest (points)	1,448	1,278	1,607	2,173	887	1,216	530	385	158	120	120	507	4,173
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	13
Highest one day (points) .....	911	666	1,032	1,144	660	462	530	172	90	115	66	383	1,144
Wet days—Average number	3	4	4	2	2	2	1	1	0	0	0	2	21
<b>Onslow (14 feet)†—</b>													
Rainfall —Average (points)	106	291	305	26	186	203	87	18	2	2	15	11	1,252
Highest (points)	1,028	2,122	1,633	1,100	1,020	908	872	421	98	61	237	241	4,265
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	57
Highest one day (points) .....	932	1,079	1,238	617	937	436	355	251	59	29	117	198	1,238
Wet days—Average number	2	4	3	2	4	4	4	2	1	0	1	1	28
<b>Carnarvon (15 feet)†—</b>													
Rainfall —Average (points)	21	95	65	31	168	198	168	70	18	17	8	3	862
Highest (points)	619	719	520	647	800	865	593	355	96	198	75	483	2,536
Lowest (points)	0	0	0	0	0	5	6	0	0	0	0	0	266
Highest one day (points) .....	358	441	470	197	410	475	322	193	63	104	28	469	475
Wet days—Average number	2	3	2	3	6	7	7	5	2	3	1	1	42
<b>Geraldton (13 feet)†—</b>													
Rainfall —Average (points)	33	51	38	107	278	423	406	268	105	60	21	28	1,818
Highest (points)	379	517	666	457	1,292	1,292	958	952	412	429	157	230	3,365
Lowest (points)	0	0	0	0	0	132	70	33	0	0	0	0	902
Highest one day (points) .....	310	324	369	270	307	430	201	365	169	280	140	202	430
Wet days—Average number	2	3	3	6	10	14	16	12	9	7	4	2	88
<b>Perth—Bureau (51 feet)†—</b>													
Rainfall —Average (points)	32	44	81	181	497	722	688	557	319	216	82	59	3,478
Highest (points)	217	655	571	585	1,213	1,875	1,673	1,253	784	787	278	317	5,267
Lowest (points)	0	0	0	0	77	216	242	46	34	15	0	0	2,000
Highest one day (points) .....	174	343	303	262	300	390	300	291	182	173	154	184	390
Wet days—Average number	3	3	4	8	14	17	18	18	14	12	6	4	121
<b>Bunbury (17 feet)†—</b>													
Rainfall —Average (points)	38	47	93	183	515	732	690	501	325	216	97	54	3,491
Highest (points)	340	405	330	690	1,047	1,620	1,640	1,187	793	769	331	316	5,374
Lowest (points)	0	0	0	0	38	287	194	82	0	26	0	0	1,904
Highest one day (points) .....	222	338	258	240	317	472	372	263	227	154	205	104	472
Wet days—Average number	3	3	4	7	14	18	18	17	14	11	6	4	119
<b>Albany (41 feet)†—</b>													
Rainfall —Average (points)	94	90	160	286	485	540	573	511	408	318	157	126	3,748
Highest (points)	854	635	653	921	1,140	1,152	1,060	1,124	796	736	671	459	5,484
Lowest (points)	4	0	10	19	174	159	205	198	80	56	19	6	2,507
Highest one day (points) .....	345	226	353	226	408	285	240	443	312	184	307	323	443
Wet days—Average number	7	7	10	13	18	20	20	20	18	16	11	9	169
<b>Esperance (14 feet)†—</b>													
Rainfall —Average (points)	68	79	107	181	322	401	417	375	280	217	114	92	2,653
Highest (points)	524	471	491	691	705	1,076	945	830	687	574	571	320	3,625
Lowest (points)	0	0	0	8	80	109	93	75	42	52	0	0	1,724
Highest one day (points) .....	274	277	175	496	205	416	218	232	455	179	200	279	496
Wet days—Average number	5	5	7	9	14	16	17	16	14	12	7	6	128
<b>Eucla (290 feet)†—</b>													
Rainfall —Average (points)	60	70	79	106	122	105	92	90	71	76	64	53	988
Highest (points)	375	680	501	807	349	608	245	323	333	291	448	455	1,705
Lowest (points)	0	0	0	0	0	7	11	7	2	2	0	0	442
Highest one day (points) .....	213	453	202	163	130	143	103	122	157	130	110	192	453
Wet days—Average number	3	4	5	8	9	10	10	9	8	7	6	4	83

† Height above mean sea-level.

RAINFALL AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

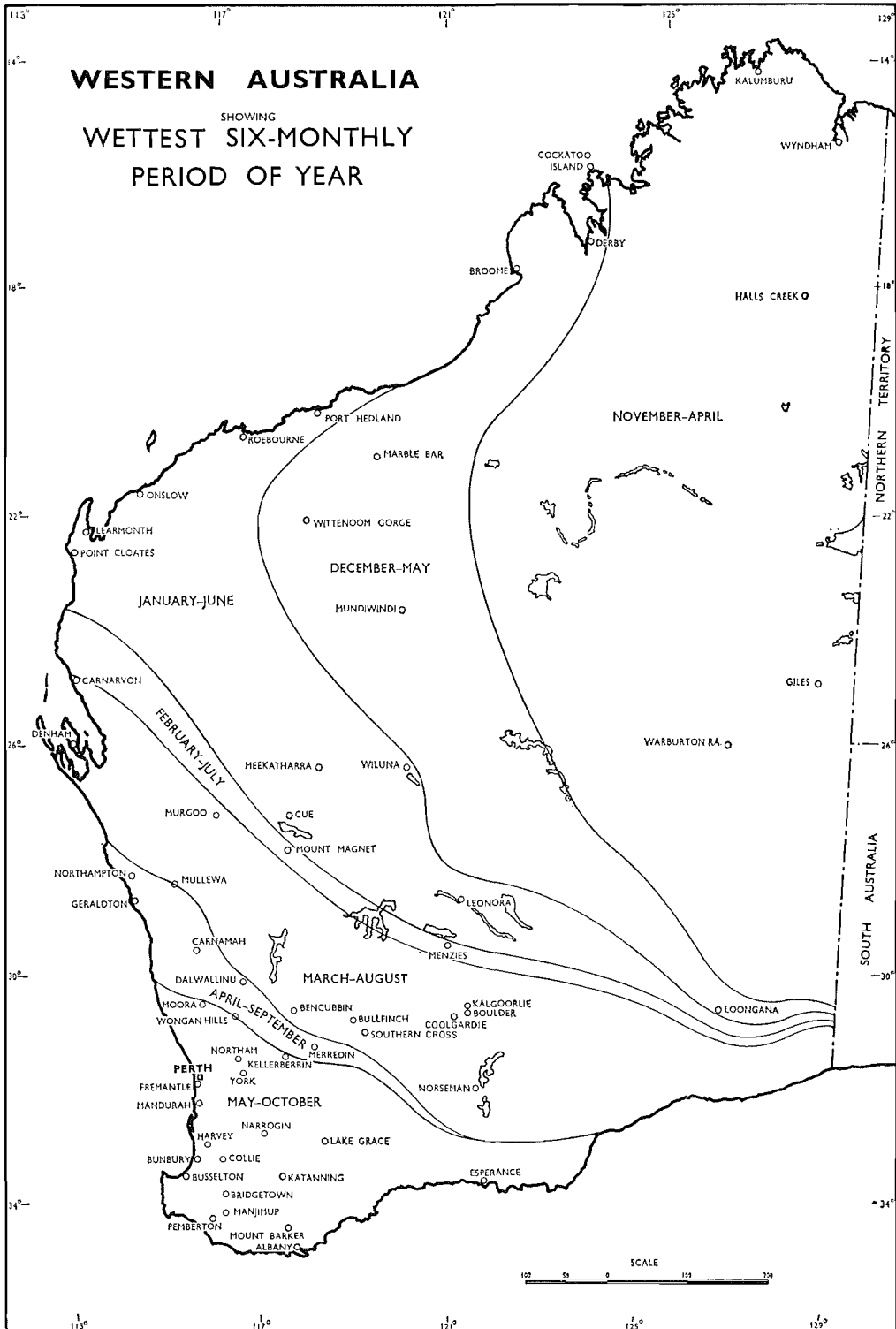
Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
<b>WHEAT BELT</b>													
<i>Carnamah</i> (879 feet)†—													
Rainfall —Average (points)	42	54	84	85	200	312	283	219	117	68	42	35	1,541
Highest (points)	404	405	551	422	668	910	742	757	332	288	357	222	3,078
Lowest (points)	0	0	0	0	6	83	53	48	2	0	0	0	837
Highest one day (points) ....	380	236	299	350	290	241	170	260	129	157	280	197	380
Wet days—Average number	2	2	2	4	9	12	13	11	8	6	2	2	73
<i>Wongan Hills</i> (906 feet)†—													
Rainfall —Average (points)	43	49	86	88	209	302	282	207	107	72	40	39	1,524
Highest (points)	274	435	653	320	739	866	687	515	285	239	171	230	2,657
Lowest (points)	0	0	0	0	1	87	32	33	6	0	0	0	629
Highest one day (points) ....	273	314	320	243	250	274	161	135	146	141	117	225	320
Wet days—Average number	1	1	2	4	8	11	13	10	7	5	2	1	65
<i>Kellerberrin</i> (820 feet)†—													
Rainfall —Average (points)	38	50	89	80	170	224	220	167	104	76	42	55	1,315
Highest (points)	344	499	599	396	419	640	483	392	289	303	266	265	2,602
Lowest (points)	0	0	0	0	0	59	41	10	8	1	0	0	678
Highest one day (points) ....	206	426	404	228	159	207	150	158	93	168	129	224	426
Wet days—Average number	2	2	3	5	8	12	13	10	8	6	3	2	74
<i>Southern Cross</i> (1,170 feet)†—													
Rainfall —Average (points)	47	72	94	80	130	143	149	116	73	60	51	45	1,060
Highest (points)	444	538	665	504	469	719	420	346	418	312	293	282	2,264
Lowest (points)	0	0	0	0	0	20	42	2	0	0	0	0	464
Highest one day (points) ....	248	331	240	172	217	168	143	120	205	216	200	156	331
Wet days—Average number	3	2	4	4	7	8	9	9	6	5	3	2	62
<i>Merredin</i> (1,046 feet)†—													
Rainfall —Average (points)	39	50	87	89	161	203	216	156	101	77	51	54	1,284
Highest (points)	367	315	634	447	518	591	498	340	337	296	271	364	2,219
Lowest (points)	0	0	0	0	5	23	34	4	0	0	0	0	512
Highest one day (points) ....	258	260	325	235	194	166	181	132	176	105	144	191	325
Wet days—Average number	2	3	3	4	8	11	12	10	7	6	3	2	71
<i>Northam</i> (490 feet)†—													
Rainfall —Average (points)	33	46	76	89	226	327	340	249	142	96	42	36	1,702
Highest (points)	219	747	744	332	583	916	871	669	506	395	162	259	2,798
Lowest (points)	0	0	0	0	4	40	77	12	10	0	0	0	764
Highest one day (points) ....	148	455	497	294	257	226	220	150	180	185	126	195	497
Wet days—Average number	2	2	3	5	10	14	15	13	10	7	3	2	86
<i>Wandering</i> (1,100 feet)†—													
Rainfall —Average (points)	37	54	91	130	324	474	472	378	257	181	70	60	2,528
Highest (points)	222	961	481	476	766	1,450	1,274	1,062	757	508	254	416	4,135
Lowest (points)	0	0	0	0	42	99	133	54	33	5	0	0	1,168
Highest one day (points) ....	192	543	410	199	240	336	273	210	180	168	190	250	543
Wet days—Average number	3	3	5	8	13	17	19	17	13	11	6	4	119
<i>Narrogin</i> (1,114 feet)†—													
Rainfall —Average (points)	39	65	86	117	255	357	364	277	190	132	56	51	1,989
Highest (points)	270	934	502	495	599	1,182	957	729	478	483	290	373	2,917
Lowest (points)	0	0	0	0	38	99	98	62	26	6	0	0	1,056
Highest one day (points) ....	197	454	450	249	269	280	320	165	144	139	150	196	454
Wet days—Average number	2	2	4	6	11	13	15	14	11	8	4	3	93
<i>Katanning</i> (1,016 feet)†—													
Rainfall —Average (points)	42	61	94	122	245	306	308	243	182	144	71	67	1,885
Highest (points)	341	884	528	638	583	844	685	681	484	450	355	293	3,077
Lowest (points)	0	0	0	2	28	84	86	51	14	17	0	0	1,072
Highest one day (points) ....	253	495	271	417	233	276	182	172	145	198	165	216	495
Wet days—Average number	3	3	5	7	12	15	17	15	13	10	5	4	109
<b>OTHER INLAND</b>													
<i>Halls Creek</i> (1,225 feet)†—													
Rainfall —Average (points)	528	463	156	76	51	22	33	10	9	52	120	251	1,771
Highest (points)	2,274	1,467	1,451	646	659	344	316	221	207	408	789	905	4,202
Lowest (points)	20	11	0	0	0	0	0	0	0	0	0	12	844
Highest one day (points) ....	831	510	685	578	241	143	189	205	123	142	198	471	831
Wet days—Average number	12	12	6	3	2	1	1	0	1	2	6	9	55

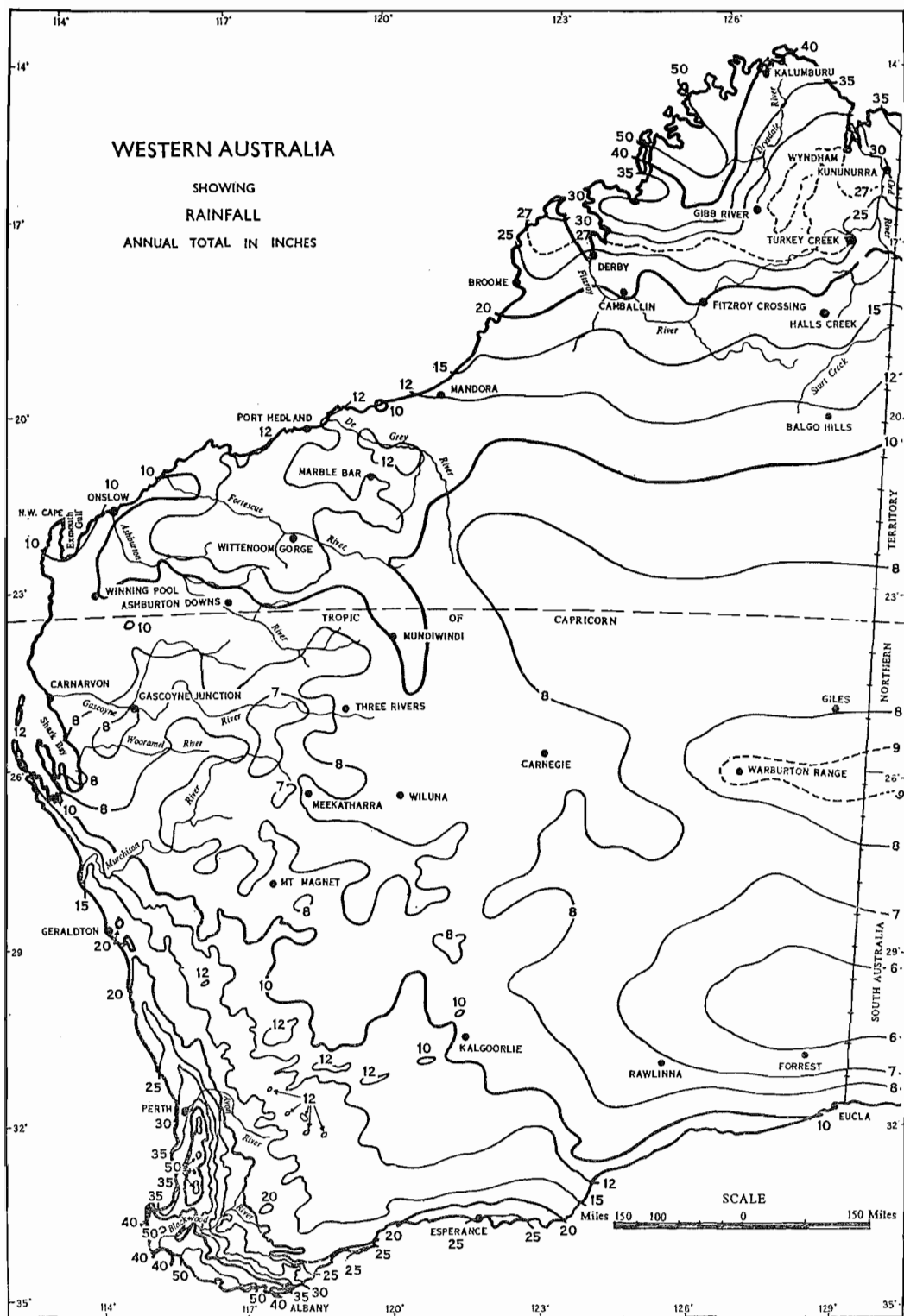
† Height above mean sea-level.

## RAINFALL AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—continued

Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
<b>OTHER INLAND—continued</b>													
<b>Marble Bar (595 feet)†—</b>													
Rainfall—Average (points)	285	290	214	83	89	93	52	21	4	18	35	135	1,319
Highest (points)	1,219	924	1,530	947	735	651	527	135	95	458	242	957	2,920
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	280
Highest one day (points) .....	574	470	1,200	536	360	412	247	125	95	332	238	592	1,200
Wet days—Average number	7	6	4	2	2	2	2	1	0	0	2	4	32
<b>Mundiwindi (1,840 feet)†—</b>													
Rainfall—Average (points)	177	181	193	86	84	76	33	31	14	32	42	107	1,056
Highest (points)	1,262	1,278	1,051	710	477	445	276	209	240	368	280	628	3,211
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	103
Highest one day (points) .....	298	278	688	237	219	175	168	152	135	210	227	450	688
Wet days—Average number	6	6	5	3	3	3	2	2	1	1	3	4	39
<b>Warburton Range (1,515 feet)†—</b>													
Rainfall—Average (points)	83	100	106	101	85	76	49	52	15	45	71	108	891
Highest (points)	697	587	710	435	357	388	211	284	965	188	328	375	2,719
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	137
Highest one day (points) .....	230	307	398	302	163	164	87	138	95	70	186	239	398
Wet days—Average number	4	3	3	3	4	3	3	2	1	2	3	5	36
<b>Meekatharra (1,676 feet)†—</b>													
Rainfall—Average (points)	135	118	80	34	78	160	64	38	16	11	41	21	796
Highest (points)	841	557	822	542	514	615	200	304	143	101	371	411	2,031
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	191
Highest one day (points) .....	335	330	405	431	303	238	134	153	132	84	322	270	431
Wet days—Average number	5	4	4	3	5	7	6	3	2	1	1	2	43
<b>Laverton (1,506 feet)†—</b>													
Rainfall—Average (points)	94	80	127	89	90	94	55	52	30	30	58	65	864
Highest (points)	559	567	479	805	487	497	192	334	265	198	598	530	1,782
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	258
Highest one day (points) .....	294	341	265	187	246	159	89	160	172	193	358	278	358
Wet days—Average number	3	3	3	4	4	5	4	3	2	2	2	2	37
<b>Kalgoorlie (1,247 feet)†—</b>													
Rainfall—Average (points)	73	143	64	82	88	108	99	76	68	36	61	45	943
Highest (points)	801	1,238	655	404	433	731	324	318	386	314	276	257	1,911
Lowest (points)	0	0	0	0	0	0	8	0	0	0	0	0	475
Highest one day (points) .....	608	700	279	282	315	225	147	137	174	246	254	199	700
Wet days—Average number	3	4	4	5	7	8	9	7	5	4	3	3	62
<b>Rawlinna (607 feet)†—</b>													
Rainfall—Average (points)	59	57	72	72	65	72	51	69	42	52	48	53	712
Highest (points)	828	483	336	448	319	513	207	609	334	250	317	461	1,956
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	310
Highest one day (points) .....	393	289	187	227	122	149	100	261	282	123	257	192	393
Wet days—Average number	2	2	3	3	4	5	4	4	3	3	3	2	38
<b>Collie (624 feet)†—</b>													
Rainfall—Average (points)	53	58	103	194	524	736	755	582	421	281	112	66	3,885
Highest (points)	304	702	414	719	1,036	1,865	1,731	1,628	977	837	352	317	5,769
Lowest (points)	0	0	0	15	58	230	203	123	57	7	2	1	2,377
Highest one day (points) .....	224	419	331	249	243	357	272	288	220	191	141	126	419
Wet days—Average number	4	3	6	10	16	19	21	19	17	13	8	5	141
<b>Manjimup (917 feet)†—</b>													
Rainfall—Average (points)	76	79	132	254	563	715	720	599	441	326	172	104	4,181
Highest (points)	320	462	542	763	1,059	1,307	1,258	1,272	1,010	652	478	306	6,934
Lowest (points)	0	0	2	34	104	339	168	193	94	74	10	0	2,558
Highest one day (points) .....	183	172	351	303	312	325	196	213	231	170	153	125	351
Wet days—Average number	6	5	8	11	18	20	22	21	16	15	11	8	161
<b>Pemberton (565 feet)†—</b>													
Rainfall—Average (points)	103	69	180	353	662	831	902	730	488	390	241	156	5,105
Highest (points)	579	347	519	821	1,331	1,469	1,563	1,572	860	764	614	379	6,897
Lowest (points)	9	5	11	42	141	497	519	412	208	97	43	19	3,601
Highest one day (points) .....	252	133	310	318	310	248	280	181	163	210	222	162	310
Wet days—Average number	7	5	9	12	18	20	21	20	17	15	12	9	165
<b>Mount Barker (829 feet)†—</b>													
Rainfall—Average (points)	88	94	144	224	341	394	420	367	325	281	159	117	2,954
Highest (points)	706	702	505	920	957	824	1,027	683	618	630	610	343	4,326
Lowest (points)	4	3	14	15	64	170	88	131	72	64	13	5	1,688
Highest one day (points) .....	412	284	192	548	270	206	285	259	175	214	251	173	548
Wet days—Average number	7	7	10	12	17	19	20	19	17	16	11	9	164

† Height above mean sea-level.





[illegible]



## TEMPERATURES AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—continued

Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
<b>COASTAL—continued</b>													
<i>Esperance—</i>													
Temperature:													
Mean max., °C ....	24.8	25.3	24.1	22.3	19.7	17.6	16.7	17.5	19.1	20.2	22.2	23.6	21.1
Mean min., °C ....	15.5	15.7	14.9	12.4	10.2	8.2	7.4	7.6	8.8	10.2	12.4	14.2	11.4
Highest max., °C ....	47.2	44.1	43.6	38.9	33.1	27.2	26.0	31.5	35.6	39.9	42.2	44.4	47.2
Lowest min., °C ....	4.9	4.9	3.9	3.3	1.7	0.0	-0.6	0.0	1.3	1.0	3.3	4.4	-0.6
No. of days 32.2°C and over	3.1	3.1	2.6	0.8	0.1	0.0	0.0	0.0	0.1	0.6	1.6	2.5	14.5
No. of days 37.8°C and over	1.2	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.8	3.8	3.8
No. of days 2.2°C and under	0.0	0.0	0.0	0.0	0.1	0.8	0.9	0.5	0.2	0.0	0.0	0.0	2.5
<i>Eucla—</i>													
Temperature:													
Mean max., °C ....	25.7	25.8	25.3	23.8	21.4	18.7	18.1	19.4	21.2	22.7	23.7	25.0	22.6
Mean min., °C ....	16.9	17.2	16.1	13.5	10.4	8.0	6.8	7.3	8.8	11.1	13.6	15.4	12.1
Highest max., °C ....	50.7	48.9	44.4	41.4	35.8	33.3	32.1	34.9	40.0	43.1	46.7	49.3	50.7
Lowest min., °C ....	7.2	6.6	4.6	4.4	0.6	-2.2	-2.2	-1.6	-0.6	-0.3	2.8	3.3	-2.2
No. of days 32.2°C and over	3.0	3.0	4.0	2.0	1.0	0.0	0.0	0.0	1.0	4.0	4.0	4.0	26.0
No. of days 37.8°C and over	2.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.0	3.0	12.0
No. of days 2.2°C and under	0.0	0.0	0.0	0.0	0.0	1.0	3.0	2.0	0.0	0.0	0.0	0.0	6.0
<b>WHEAT BELT</b>													
<i>Carnamah—</i>													
Temperature:													
Mean max., °C ....	35.4	35.2	31.9	27.9	22.3	19.6	17.9	19.4	22.0	25.5	29.6	32.7	26.6
Mean min., °C ....	17.5	17.6	15.8	13.3	9.8	8.5	7.1	7.0	7.5	9.7	12.6	15.1	11.8
Highest max., °C ....	45.6	45.6	43.9	38.9	32.8	27.8	27.8	29.4	35.1	40.0	43.1	43.9	45.6
Lowest min., °C ....	5.1	6.9	6.7	1.7	1.1	0.0	0.6	0.7	1.0	1.1	2.3	6.7	0.0
No. of days 32.2°C and over	23.8	22.2	18.7	6.5	0.0	0.0	0.0	0.0	0.6	3.5	8.8	16.8	100.9
No. of days 37.8°C and over	12.2	9.4	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3	5.9	33.4
No. of days 2.2°C and under	0.0	0.0	0.0	0.0	0.1	0.5	0.8	0.8	0.3	0.0	0.0	0.0	2.5
<i>Wongan Hills—</i>													
Temperature:													
Mean max., °C ....	33.7	32.4	31.1	25.8	19.6	16.9	15.8	16.6	20.3	23.1	26.8	29.8	24.3
Mean min., °C ....	17.3	17.2	16.2	13.1	9.2	7.3	5.4	5.4	7.5	8.8	11.1	13.9	11.1
Highest max., °C ....	44.4	43.1	42.5	37.0	31.8	23.4	24.6	26.4	32.4	37.5	40.1	44.2	44.4
Lowest min., °C ....	8.8	9.5	5.6	2.8	1.2	0.6	0.1	-0.3	0.2	1.7	4.3	5.3	-0.3
No. of days 32.2°C and over	18.2	15.5	14.5	2.7	0.0	0.0	0.0	0.0	0.0	1.0	5.2	10.7	67.9
No. of days 37.8°C and over	6.7	4.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.7	13.9
No. of days 2.2°C and under	0.0	0.0	0.0	0.0	0.2	0.8	2.5	2.7	1.1	0.0	0.0	0.0	7.3
<i>Kellerberrin—</i>													
Temperature:													
Mean max., °C ....	33.9	33.5	30.2	26.2	20.7	17.4	16.3	17.8	21.2	24.5	29.4	32.5	25.3
Mean min., °C ....	16.4	16.3	14.9	11.2	8.1	6.4	5.3	5.5	6.6	8.8	12.5	14.9	10.6
Highest max., °C ....	46.1	46.7	44.4	39.2	35.6	26.9	24.4	28.1	36.5	39.4	43.1	45.0	46.7
Lowest min., °C ....	7.2	6.1	4.8	1.1	-2.2	-3.1	-3.3	-2.4	-1.1	0.3	1.7	5.6	-3.3
No. of days 32.2°C and over	19.9	16.7	11.3	2.7	0.2	0.0	0.0	0.0	0.2	1.8	8.5	15.0	76.3
No. of days 37.8°C and over	6.9	5.5	1.8	0.1	0.0	0.0	0.0	0.0	0.0	0.1	1.4	4.6	20.4
No. of days 2.2°C and under	0.0	0.0	0.0	0.1	2.4	4.6	7.4	7.0	3.4	0.6	0.0	0.0	25.5
<i>Southern Cross—</i>													
Temperature:													
Mean max., °C ....	34.6	33.9	30.6	26.1	20.8	17.2	16.5	18.2	22.2	25.4	30.3	33.5	25.8
Mean min., °C ....	16.8	16.8	14.7	10.9	7.3	5.3	3.9	4.6	6.2	8.8	12.8	15.5	10.3
Highest max., °C ....	46.1	47.2	44.4	39.6	33.3	27.5	26.7	29.9	34.8	39.3	43.4	45.9	47.2
Lowest min., °C ....	5.6	5.6	3.4	-1.1	-3.3	-4.3	-5.0	-3.9	-3.3	-0.8	2.0	4.9	-5.0
No. of days 32.2°C and over	21.5	17.3	12.7	3.2	0.0	0.0	0.0	0.0	0.4	2.7	10.6	18.5	86.9
No. of days 37.8°C and over	9.1	7.2	2.5	0.1	0.0	0.0	0.0	0.0	0.0	0.1	2.0	6.4	27.4
No. of days 2.2°C and under	0.0	0.0	0.0	0.6	2.4	7.1	8.6	9.6	3.5	0.4	0.0	0.0	32.2
<i>Merredin—</i>													
Temperature:													
Mean max., °C ....	33.8	33.1	29.9	25.1	20.0	16.7	15.6	17.1	20.7	24.1	28.5	31.7	24.7
Mean min., °C ....	16.8	16.7	15.2	11.6	7.9	6.2	4.7	4.6	5.8	8.3	12.1	14.9	10.4
Highest max., °C ....	45.0	44.4	43.1	38.8	34.2	27.4	25.2	27.9	33.7	39.2	41.7	44.5	45.0
Lowest min., °C ....	7.5	6.1	5.1	-1.2	-3.9	-2.8	-3.7	-3.4	-2.5	-1.2	0.6	5.0	-3.9
No. of days 32.2°C and over	19.8	16.1	10.6	1.7	0.0	0.0	0.0	0.0	0.1	1.5	7.1	14.0	70.9
No. of days 37.8°C and over	6.2	5.0	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.7	3.5	17.0
No. of days 2.2°C and under	0.0	0.0	0.0	0.4	1.4	4.2	6.5	8.7	4.2	0.8	0.0	0.0	26.2
<i>Northam—</i>													
Temperature:													
Mean max., °C ....	33.8	33.5	30.3	26.2	20.8	17.5	16.6	17.7	20.6	23.4	28.7	32.0	25.1
Mean min., °C ....	17.1	17.1	15.4	11.8	8.5	6.5	5.4	5.8	7.2	9.1	12.8	15.6	11.0
Highest max., °C ....	46.2	46.7	43.9	39.4	33.9	27.2	24.4	28.0	34.6	39.4	44.0	45.6	46.7
Lowest min., °C ....	7.3	7.5	5.5	0.6	-2.7	-3.9	-2.1	-1.1	-0.9	0.4	3.0	5.6	-3.9
No. of days 32.2°C and over	20.2	17.3	11.7	3.2	0.1	0.0	0.0	0.0	0.1	1.3	7.1	15.0	76.0
No. of days 37.8°C and over	7.3	5.9	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	4.5	21.3
No. of days 2.2°C and under	0.0	0.0	0.0	0.2	1.1	4.7	5.5	6.2	2.0	0.2	0.0	0.0	19.9

## TEMPERATURES AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—continued

Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
<b>WHEAT BELT—continued</b>													
<i>Wandering—</i>													
Temperature:													
Mean max., °C ....	31.3	30.7	27.8	23.8	18.8	15.8	15.1	15.8	18.3	20.9	26.1	29.4	22.8
Mean min., °C ....	13.6	13.3	12.0	8.6	6.4	4.7	3.9	4.1	5.2	6.6	9.4	11.9	8.3
Highest max., °C ....	45.6	43.8	41.9	36.1	30.6	25.0	22.1	26.1	30.0	36.9	39.7	42.8	45.6
Lowest min., °C ....	3.3	2.8	-0.6	-2.2	-5.6	-5.7	-4.4	-3.9	-2.8	-2.2	-1.7	1.7	-5.7
No. of days 32.2°C and over	15.2	12.0	9.3	1.3	0.0	0.0	0.0	0.0	0.0	0.4	2.3	7.4	47.9
No. of days 37.8°C and over	3.7	2.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3	8.0
No. of days 2.2°C and under	0.0	0.0	0.0	1.3	7.9	9.8	9.9	9.5	9.4	5.3	1.0	0.3	54.4
<i>Narrogin—</i>													
Temperature:													
Mean max., °C ....	30.8	30.1	27.2	22.9	18.1	15.1	14.3	15.2	17.8	20.7	25.6	28.8	22.2
Mean min., °C ....	13.6	13.6	12.4	10.1	7.6	6.2	5.1	5.1	5.8	6.9	9.5	11.7	8.9
Highest max., °C ....	43.7	42.8	40.9	35.6	31.9	26.2	21.2	24.9	30.4	37.8	39.7	43.2	43.7
Lowest min., °C ....	5.0	3.3	1.7	0.6	-1.1	-2.1	-3.9	-2.2	-1.2	-0.6	1.7	3.1	-3.9
No. of days 32.2°C and over	11.5	9.0	4.3	0.6	0.0	0.0	0.0	0.0	0.0	0.2	2.6	7.2	35.4
No. of days 37.8°C and over	2.1	1.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	5.3
No. of days 2.2°C and under	0.0	0.0	0.0	0.4	2.4	3.8	6.6	6.5	6.9	3.4	0.9	0.1	31.0
<i>Katanning—</i>													
Temperature:													
Mean max., °C ....	30.0	29.5	26.3	22.9	18.2	15.4	14.4	15.3	17.8	20.4	25.3	28.2	22.0
Mean min., °C ....	13.5	13.6	12.6	10.2	8.1	6.4	5.5	5.6	6.5	7.6	10.1	12.1	9.3
Highest max., °C ....	43.8	44.6	41.7	35.7	31.3	24.1	21.7	31.1	30.6	37.8	41.1	43.3	44.6
Lowest min., °C ....	5.0	3.3	1.7	0.6	-1.1	-2.1	-3.9	-2.2	-1.2	-0.6	1.7	3.1	-3.9
No. of days 32.2°C and over	12.3	7.5	5.3	1.1	0.0	0.0	0.0	0.0	0.0	0.3	2.0	5.9	34.4
No. of days 37.8°C and over	2.6	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	5.2
No. of days 2.2°C and under	0.0	0.0	0.0	0.2	1.8	3.6	4.4	4.5	2.8	1.1	0.2	0.0	18.6
<b>OTHER INLAND</b>													
<i>Halls Creek—</i>													
Temperature:													
Mean max., °C ....	36.4	36.1	35.3	33.5	29.8	27.0	26.7	29.9	33.7	36.8	38.1	37.5	33.4
Mean min., °C ....	24.1	23.4	21.8	17.2	13.3	10.3	8.7	11.2	15.0	20.8	23.4	24.2	17.8
Highest max., °C ....	44.3	43.8	42.0	39.9	37.2	35.0	34.0	37.8	40.2	43.8	43.8	44.2	44.3
Lowest min., °C ....	15.6	12.2	11.0	7.2	2.4	0.2	-1.1	0.4	3.0	8.9	11.7	12.1	-1.1
No. of days 32.2°C and over	28.5	24.8	29.1	22.7	9.5	0.8	1.3	7.3	23.2	29.2	29.7	29.0	235.1
No. of days 37.8°C and over	17.8	8.5	9.6	1.6	0.0	0.0	0.0	0.0	0.7	12.7	17.6	19.2	87.7
No. of days 2.2°C and under	0.0	0.0	0.0	0.0	0.0	0.3	0.8	0.0	0.0	0.0	0.0	0.0	1.1
<i>Marble Bar—</i>													
Temperature:													
Mean max., °C ....	41.2	40.8	39.4	36.1	31.1	27.2	27.0	29.9	34.3	37.8	41.1	41.9	35.7
Mean min., °C ....	26.1	25.9	24.9	20.8	16.3	12.6	11.3	13.7	16.5	20.4	24.0	25.6	19.8
Highest max., °C ....	49.2	48.3	46.7	45.0	39.4	33.9	35.0	37.2	42.6	45.6	47.2	48.3	49.2
Lowest min., °C ....	18.9	13.9	15.3	11.1	5.6	1.1	2.2	3.9	5.6	10.0	14.4	17.2	1.1
No. of days 32.2°C and over	30.3	26.5	28.8	26.0	10.1	0.5	0.8	7.3	22.6	26.3	30.0	30.5	239.7
No. of days 37.8°C and over	27.9	22.1	18.9	8.8	0.2	0.0	0.0	0.0	2.0	12.6	24.2	28.7	145.4
No. of days 2.2°C and under	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	0.0	0.0	0.0	0.0	1.0
<i>Mundiwindi—</i>													
Temperature:													
Mean max., °C ....	38.1	37.1	34.4	30.4	25.4	21.3	21.1	23.7	28.4	31.9	35.7	37.7	30.4
Mean min., °C ....	23.1	22.6	20.6	15.7	10.7	6.3	5.2	7.2	10.7	14.8	19.3	21.8	14.8
Highest max., °C ....	44.6	44.4	42.3	40.6	36.4	29.8	30.6	37.2	37.2	41.4	43.3	44.4	44.6
Lowest min., °C ....	13.9	12.8	9.4	3.9	-1.7	-4.4	-5.3	-3.6	-1.7	3.3	7.8	11.7	-5.3
No. of days 32.2°C and over	29.3	25.3	25.4	11.6	0.6	0.0	0.0	0.4	5.6	15.9	25.3	29.1	168.5
No. of days 37.8°C and over	20.3	15.7	10.2	0.2	0.0	0.0	0.0	0.0	0.0	1.3	9.8	19.9	77.4
No. of days 2.2°C and under	0.0	0.0	0.0	0.0	0.6	5.6	7.3	3.7	0.2	0.0	0.0	0.0	17.4
<i>Warburton Range—</i>													
Temperature:													
Mean max., °C ....	36.7	36.1	33.6	28.6	23.1	20.6	20.1	22.3	26.9	30.0	32.9	36.1	28.9
Mean min., °C ....	22.1	21.4	19.9	14.8	9.7	6.4	5.6	7.2	10.6	13.9	17.6	20.8	14.2
Highest max., °C ....	46.6	46.1	43.4	40.4	33.3	32.3	31.7	34.3	39.9	42.7	44.4	46.3	46.9
Lowest min., °C ....	10.0	9.1	9.6	1.8	-1.1	-2.6	-4.1	-2.2	1.1	4.1	7.2	9.4	-4.1
No. of days 32.2°C and over	26.0	23.0	22.0	7.0	0.0	0.0	0.0	0.0	6.0	13.0	19.0	26.0	142.0
No. of days 37.8°C and over	16.0	13.0	9.0	1.0	0.0	0.0	0.0	0.0	0.0	2.0	8.0	14.0	63.0
No. of days 2.2°C and under	0.0	0.0	0.0	0.0	1.0	4.0	6.0	5.0	0.0	0.0	0.0	0.0	16.0
<i>Meekatharra—</i>													
Temperature:													
Mean max., °C ....	38.0	37.6	34.4	29.8	24.4	20.3	19.7	21.8	25.9	29.3	33.8	36.8	29.3
Mean min., °C ....	22.8	22.8	20.8	16.1	11.4	7.9	6.7	8.1	10.6	13.8	18.2	21.1	15.0
Highest max., °C ....	45.0	45.6	43.6	40.1	34.7	29.4	27.9	32.6	36.1	39.4	42.8	43.7	45.6
Lowest min., °C ....	12.2	12.3	10.3	5.8	0.6	-3.1	-0.2	0.1	1.1	4.6	6.1	11.1	-3.1
No. of days 32.2°C and over	28.8	24.3	21.7	9.8	0.3	0.0	0.0	0.1	1.8	8.3	17.9	25.6	138.6
No. of days 37.8°C and over	18.6	13.7	6.2	0.3	0.0	0.0	0.0	0.0	0.0	0.4	3.5	10.6	53.3
No. of days 2.2°C and under	0.0	0.0	0.0	0.0	0.2	0.9	1.3	0.1	0.0	0.0	0.0	0.0	2.5

TEMPERATURES AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

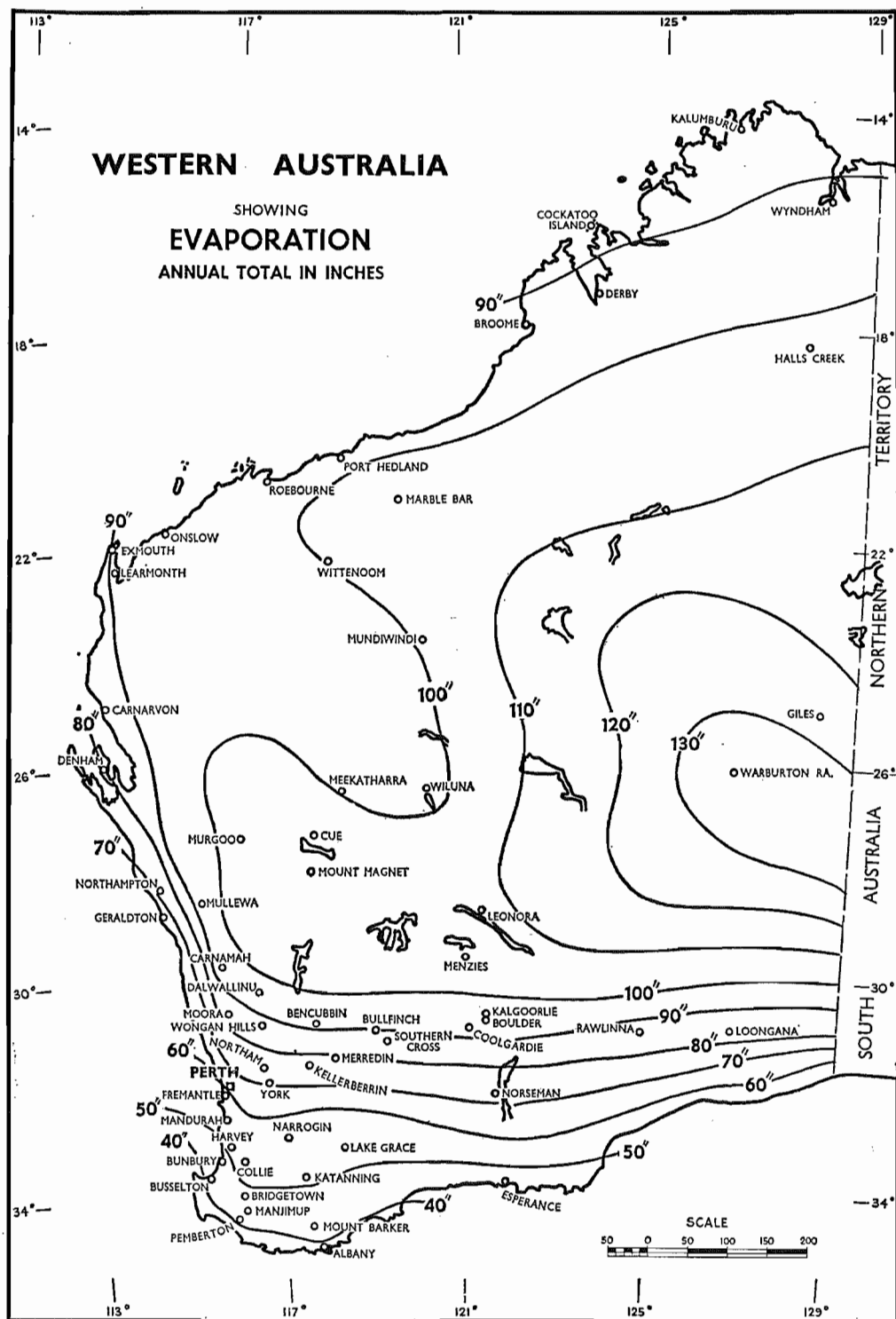
Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
<b>OTHER INLAND—<i>continued</i></b>													
<b>Laverton—</b>													
Temperature:													
Mean max., °C ....	35.8	35.0	31.8	27.3	22.1	18.3	17.8	20.1	24.6	27.8	32.0	34.9	27.3
Mean min., °C ....	20.4	20.1	18.0	13.8	9.4	6.4	5.2	6.5	9.6	12.6	16.6	19.3	13.2
Highest max., °C ....	46.1	46.1	44.4	40.0	35.0	30.2	30.1	33.9	36.8	40.6	43.9	45.6	46.1
Lowest min., °C ....	10.0	7.5	6.1	2.8	-0.9	-2.8	-4.2	-2.8	-1.1	2.2	4.4	10.0	-4.2
No. of days 32.2°C and over	24.0	20.0	15.0	5.0	0.0	0.0	0.0	0.0	2.0	7.0	16.0	23.0	112.0
No. of days 37.8°C and over	12.0	10.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	5.0	10.0	42.0
No. of days 2.2°C and under	0.0	0.0	0.0	0.0	1.0	4.0	6.0	4.0	0.0	0.0	0.0	0.0	15.0
<b>Kalgoorlie—</b>													
Temperature:													
Mean max., °C ....	34.0	33.9	30.2	25.8	21.2	17.6	16.9	18.9	23.1	26.1	30.2	32.8	25.9
Mean min., °C ....	17.9	18.0	16.3	12.9	9.4	6.9	6.1	6.6	9.0	11.5	14.6	16.8	12.2
Highest max., °C ....	45.8	46.1	43.9	39.2	33.3	27.7	27.2	30.6	35.6	40.7	43.7	45.0	46.1
Lowest min., °C ....	8.4	8.9	5.3	1.7	-1.8	-2.6	-3.3	-2.4	-0.6	-1.0	3.4	7.5	-3.3
No. of days 32.2°C and over	18.8	12.9	10.8	2.9	0.1	0.0	0.0	0.0	0.4	2.9	7.4	14.8	71.0
No. of days 37.8°C and over	7.5	4.3	2.7	0.3	0.0	0.0	0.0	0.0	0.0	0.1	1.3	3.9	20.1
No. of days 2.2°C and under	0.0	0.0	0.0	0.1	0.3	1.8	3.9	3.6	0.3	0.0	0.0	0.0	10.0
<b>Rawlinna—</b>													
Temperature:													
Mean max., °C ....	32.2	32.1	29.1	25.6	21.8	18.5	17.9	19.6	23.6	26.1	29.1	31.6	25.6
Mean min., °C ....	14.9	15.1	14.3	11.2	8.0	5.3	4.1	5.1	7.4	9.7	12.3	14.2	10.1
Highest max., °C ....	47.8	46.4	44.4	40.0	35.0	31.3	29.4	33.9	39.3	41.7	44.6	45.7	47.8
Lowest min., °C ....	5.6	5.0	6.1	1.7	0.0	-1.6	-2.3	-3.2	-0.2	0.7	2.4	5.1	-3.2
No. of days 32.2°C and over	14.8	10.8	10.3	2.8	0.5	0.0	0.0	0.0	1.7	3.6	7.9	13.3	65.7
No. of days 37.8°C and over	6.8	3.5	3.2	0.2	0.0	0.0	0.0	0.0	0.1	0.8	2.5	5.7	22.8
No. of days 2.2°C and under	0.0	0.0	0.0	0.0	1.2	3.5	5.3	4.4	0.8	0.2	0.0	0.0	15.4
<b>Collie—</b>													
Temperature:													
Mean max., °C ....	30.2	29.8	26.9	23.5	18.8	16.3	15.4	16.1	18.2	20.4	25.1	28.3	22.4
Mean min., °C ....	13.1	12.7	11.4	8.4	6.1	4.7	3.9	4.3	5.8	7.4	9.8	11.7	8.3
Highest max., °C ....	44.4	43.4	40.8	36.7	30.4	24.4	22.8	26.1	30.3	36.3	38.8	41.2	44.4
Lowest min., °C ....	3.2	1.8	0.2	-1.3	-2.2	-4.0	-3.9	-3.2	-2.2	-0.6	0.3	1.7	-4.0
No. of days 32.2°C and over	13.0	11.3	8.0	1.2	0.0	0.0	0.0	0.0	0.0	0.3	2.1	5.7	41.6
No. of days 37.8°C and over	2.2	1.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	5.5
No. of days 2.2°C and under	0.0	0.0	0.1	0.8	5.3	7.8	7.9	6.6	5.9	1.8	0.3	0.1	36.6
<b>Manjimup—</b>													
Temperature:													
Mean max., °C ....	25.7	26.3	23.8	20.8	17.1	15.2	14.1	14.8	16.3	18.2	21.7	24.1	19.8
Mean min., °C ....	12.1	12.2	11.7	10.3	8.1	6.9	5.8	6.1	6.5	7.9	9.6	11.0	9.0
Highest max., °C ....	41.7	40.6	38.9	33.3	27.2	22.2	21.7	24.7	28.1	33.3	37.4	37.8	41.7
Lowest min., °C ....	5.6	4.4	3.3	1.7	1.1	0.6	-2.8	-1.1	-0.6	0.6	1.7	4.4	-2.8
No. of days 32.2°C and over	5.7	4.3	3.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.0	16.1
No. of days 37.8°C and over	0.3	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
No. of days 2.2°C and under	0.0	0.0	0.0	0.1	0.5	1.3	2.3	3.2	2.1	0.1	0.0	0.0	9.6
<b>Pemberton—</b>													
Temperature:													
Mean max., °C ....	25.9	25.8	23.9	20.5	17.6	15.6	14.4	15.3	16.4	18.1	21.0	23.3	19.8
Mean min., °C ....	13.0	13.4	12.7	10.7	9.1	8.2	6.9	6.8	7.2	8.1	9.9	11.6	9.8
Highest max., °C ....	41.1	39.4	38.9	33.9	26.7	22.2	21.1	25.6	28.3	30.6	35.0	37.8	41.1
Lowest min., °C ....	4.4	4.4	3.9	2.8	0.0	1.1	0.0	-1.1	-0.3	1.7	2.1	3.9	-1.1
No. of days 32.2°C and over	3.9	2.8	2.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.1	12.2
No. of days 37.8°C and over	0.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
No. of days 2.2°C and under	0.0	0.0	0.0	0.0	0.2	0.7	1.3	1.6	0.9	0.2	0.0	0.0	4.9
<b>Mt Barker—</b>													
Temperature:													
Mean max., °C ....	25.6	25.7	23.4	20.9	17.2	14.9	14.0	14.8	16.6	18.5	21.8	24.1	19.8
Mean min., °C ....	12.3	12.4	11.9	10.3	8.2	6.7	5.6	5.8	6.7	7.7	9.6	11.2	9.1
Highest max., °C ....	43.9	43.6	40.6	36.0	30.6	24.3	21.1	25.0	29.3	35.6	39.4	42.9	43.9
Lowest min., °C ....	1.7	3.9	3.6	2.2	0.6	0.0	-2.2	-1.3	-0.6	0.6	1.1	1.1	-2.2
No. of days 32.2°C and over	4.3	4.0	2.5	0.4	0.0	0.0	0.0	0.0	0.0	0.1	1.0	2.8	15.1
No. of days 37.8°C and over	0.8	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	2.2
No. of days 2.2°C and under	0.0	0.0	0.0	0.1	0.3	1.5	3.5	3.3	1.9	0.4	0.0	0.0	11.0

## THUNDERSTORMS

Thunderstorms are most frequent along the Kimberley coast where they occur during the 'Wet' season but are practically unknown in the 'Dry'. In the remainder of the tropics they occur over roughly the same period but the season is a little shorter and the storms less frequent.

In most of the State south from the tropics thunderstorms are most frequent in the summer months but in the south-west they are more uniformly distributed and in many places in coastal districts they are most frequent in winter.

The winter storms are often accompanied by hail which, however, is usually not heavy enough to cause any damage. Hail accompanying summer storms can be much heavier, and occasionally damages ripening crops in the wheat belt. Both winter and summer thunderstorms may be accompanied by severe squalls, but these are infrequent.



## EVAPORATION

Except in the lower south-west, evaporation from a free water surface exceeds the annual rainfall, and in a large proportion of the State it is more than ten times greater than the rainfall.

It is least in the winter months, amounting in July to less than one inch in the far south-west, and to about eight inches in the northern tropics. In January, when evaporation is highest, it totals about five inches on the far south coast and reaches fourteen inches in the East Gascoyne and North-Eastern Meteorological Districts. Further north, evaporation is reduced by the moister air over the tropics at this time of the year.

The map on page 48 shows total annual evaporation throughout the State.

## GROWING SEASON

Less moisture is required to sustain plant life when evaporation is low than when it is high, and the minimum amount required can be related to evaporation from a free water surface.

That part of the year during which rainfall is greater than this minimum amount (the 'effective rainfall'), may be taken as the *growing season*. The map on page 50 shows the length of this season in the agricultural area of the State. It is based on average monthly rainfall and effective rainfall, the latter being calculated from the formula  $P = 0.54 \times E^{0.7}$  (after Prescott), where P is effective rainfall and E is evaporation (both in inches per month).

## METROPOLITAN CLIMATE

Perth has more sunshine and a greater number of clear days during the year than any other State capital city. It also has the wettest winter, the driest summer, and is the windiest of the capital cities. The highest temperature on record for Perth is 44.6°C (8 February 1933) and the lowest 1.2°C (7 July 1916).

## CLIMATOLOGICAL DATA—PERTH BUREAU OF METEOROLOGY

(For other data relating to Temperature and Rainfall see preceding tables)

Month	Wind				Temperature				Relative humidity (Saturation = 100%)		Sun- shine	Cloud (propor- tion of sky covered)	Evapora- tion
	Prevailing direction		Speed		Highest in sun	Lowest terrestrial	Mean	At 3 p.m.					
			Average	High- est									
Number of years of observations	30 (a)		30 (a)	54	62	67	30 (a)		30 (a)	30 (a)	30 (a)		
January .....	E.	SSW.	km/h	km/h	°C	date	°C	date	%	%	hours	%	inches
February .....	ENE.	SSW.	17.5	80	80.7	22/1914	4.2	20/1925	53	43	10.4	29	10.37
March .....	E.	SSW.	17.2	87	78.7	4/1934	—1.2	1/1913	52	43	9.8	31	8.63
April .....	ENE.	SSW.	16.3	113	75.0	19/1918	2.6	(b)	57	46	8.8	35	7.52
May .....	NE.	WSW.	13.7	101	69.4	8/1916	—0.7	26/1960	60	48	7.5	42	4.62
June .....	N.	NW.	13.5	119	63.3	4/1925	—3.9	31/1964	68	58	5.7	54	2.80
July .....	N.	NW.	13.5	129	57.5	9/1914	—3.3	27/1946	72	63	4.8	59	1.82
August .....	NNE.	W.	14.2	137	56.2	13/1915	—3.8	30/1920	73	63	5.4	56	1.76
September....	N.	WNW.	15.1	156	62.8	29/1921	—3.0	18/1966	71	60	6.0	56	2.37
October .....	ENE.	SSW.	15.1	109	67.6	29/1916	—2.6	(c)	64	57	7.2	49	3.44
November....	SE.	SW.	16.1	105	71.8	19/1954	—1.2	16/1931	64	54	8.1	48	5.38
December....	E.	SW.	17.2	101	75.0	30/1925	1.6	1/1968	57	47	9.6	39	7.65
Year—	E.	SSW.	17.7	102	76.0	11/1927	3.3	29/1957	54	46	10.4	32	9.69
Average....	E.	SSW.	15.6	....	....	....	....	....	62	52	7.8	44	....
Extremes	....	....	....	156	80.7	22/1/14	—3.9	31/5/64	....	....	....	....	....
Total .....	....	....	....	....	....	....	....	....	....	....	....	....	66.05

(a) Standard 30 years' normal (1911–1940).  
8 September 1952 and 6 September 1956.

(b) Recorded on 8 March 1903 and 16 March 1967.

(c) Recorded on



## SNOW

Snow has been known to fall as far north as Wongan Hills, but it is only in the southern districts that it occasionally lies on the ground. It is seen on top of the Stirling Range for a short time nearly every winter, but elsewhere is very infrequent and of negligible importance.

## INTERSTATE COMPARISONS

In general, humidity and rainfall are lower in Western Australia than in corresponding places in eastern Australia. The following table shows average rainfall, mean humidity and temperature for groups of reporting stations at approximately the same latitude. The stations have been selected in such a way that, in each pair, one is on the west coast and the other on the east coast or, where a pair relates to inland stations, each station is situated at about the same distance from the coast. The group appearing last in the table has been included to provide a comparison between observations at Albany, the most southerly town in Western Australia, and those at places elsewhere in Australia at about the same latitude. The height above mean sea-level is also given for each station.

## INTERSTATE COMPARISONS—RAINFALL, HUMIDITY, TEMPERATURE

Reporting station	Height above mean sea- level	Average rainfall		Relative humidity (a)		Average daily mean temperature	
		May to October	November to April	May to October	November to April	May to October	November to April
	feet	inches	inches	%	%	°C	°C
Bunbury ....	17	29.96	5.01	77	70	13.9	19.7
Sydney, New South Wales ....	138	21.53	23.27	66	69	14.6	20.7
Perth ....	52	30.24	4.80	69	55	14.6	21.6
Newcastle, New South Wales ....	112	20.56	20.80	70	74	14.8	20.9
Kalgoorlie ....	1,247	5.16	4.53	58	48	14.4	23.6
Cobar, New South Wales ....	822	5.88	6.73	59	46	13.5	24.0
Geraldton ....	13	16.04	2.39	67	62	16.8	22.8
Brisbane, Queensland ....	137	12.01	28.08	66	69	17.4	23.7
Wiluna ....	1,700	3.21	6.59	50	35	15.8	27.2
Charleville, Queensland ....	965	6.19	11.78	55	46	16.2	26.4
Carnarvon ....	15	6.48	2.60	63	63	18.6	25.2
Bundaberg, Queensland ....	45	10.86	31.51	73	74	18.1	24.3
Mundiwindi ....	1,840	2.74	8.28	39	30	17.2	28.0
Longreach, Queensland ....	612	3.92	11.62	50	50	18.7	27.9
Onslow ....	14	4.45	4.88	55	56	20.7	28.3
Mackay, Queensland ....	35	11.49	51.67	78	80	19.3	25.4
Port Hedland ....	25	3.33	9.23	50	59	22.6	29.6
Townsville, Queensland ....	73	5.49	37.57	66	73	22.1	26.8
Derby ....	53	1.67	23.78	51	65	24.9	30.3
Innisfail, Queensland ....	22	35.88	103.27	85	85	20.9	25.6
Wyndham ....	23	1.13	25.51	43	59	27.2	31.1
Cooktown, Queensland ....	17	8.08	59.79	76	78	23.9	27.3
Albany ....	41	28.75	8.87	76	73	13.2	17.9
Adelaide, South Australia ..	140	14.42	6.67	64	45	13.6	20.9
Swan Hill, Victoria ....	230	7.88	5.21	70	54	11.9	21.0
Canberra, Australian Capital Territory ....	1,837	11.85	11.45	72	61	14.2	17.8

(a) Saturation = 100%.

## SATELLITES AND METEOROLOGY

An adequate understanding of the present weather is essential to a forecaster. He obtains this information from a network of weather recording stations dotted across continents and islands. Reports from these stations enable him to assess the nature of complex meteorological processes and to judge the significance of trends which are expected to contribute to the future weather.

There remains, however, more than seven-tenths of the earth's surface—the ocean areas—from which, prior to 1960, virtually no data were available and which remained blank areas on the chart presented to the meteorologist for analysis.

This problem is obviously more pronounced in the southern hemisphere, 80 per cent of which is covered by oceans. Australian forecasters, especially those working in the Western Australian Regional Forecasting Centre in Perth, have a particular interest in obtaining additional weather reports from the ocean regions both to the west and south of the continent. Most of the weather patterns affecting the Australian region originate in these areas where weather reports are almost completely non-existent. Over the Indian Ocean the nearest reports are received from Amsterdam Island and Kerguelen Island, both some 1,500 miles from the continent. To the south, an equal distance lies between Australia and the coast of Antarctica with its scattered reporting stations.

Before satellites started 'spying', major storm systems could exist for days in the vast ocean areas without detection. As they moved eastward towards Australia the only indication of their existence was a sudden deterioration of weather conditions along the Australian coast. Similarly, tropical cyclones were often undetected in ocean waters many thousands of miles from air lanes and shipping routes.

### **Meteorological Satellite Data**

In April 1960 the first satellite designed solely to provide meteorological information was launched by the United States. Tiros 1 (Tiros = Television and Infra-Red Observational Satellite) then provided the first weather observation station in space. Following an intensive development programme, the first cloud picture was received directly in Melbourne in 1966. Since then Australia has received about 20,000 pictures from eleven separate satellites launched by the United States and there is no doubt that satellite data have become an integral and vital component of routine meteorological observations. There are two satellites currently (1972) in use. One is called ESSA 8 (ESSA = Environmental Science Service's Administration), which has been tracked daily since its launching in 1968; the other, NOAA 2 (NOAA = National Oceanic and Atmospheric Administration), was launched in October 1972.

The current satellites are designed to pass in orbit over the poles at a height of approximately 800 miles, one complete orbit taking 113 minutes. The satellites pass over a particular location on the earth's surface at the same time each day, usually at 9 a.m. local time and again at 9 p.m. The information gathered by the satellites' equipment is converted to an electromagnetic wave signal and transmitted direct to tracking stations on the ground beneath. The receiving equipment, known as the Automatic Picture Transmission (APT) service, is relatively uncomplicated and cheap to operate. Exact predictions of the satellites' positions are made by the Bureau of Meteorology's computer in Melbourne, and remotely-controlled aerials at four tracking stations are then able to follow the pass overhead. To enable the widest possible coverage, tracking stations are located at Brisbane, Melbourne, Darwin and Perth.

From these tracking stations, the received signals are fed by landline communications to facsimile recorders at analysis and forecast centres throughout Australia. Geographical grids are superimposed on the final pictures to enable precise location of meteorological features and the gridded pictures are in the hands of experts within minutes of picture-taking.

Currently, two types of pictures are available in the Perth Regional Forecasting Centre. The most familiar cloud photograph is obtained using a television camera mounted in the satellite. The camera is aligned to view the area directly beneath the satellite and it detects sunlight reflected by clouds or, in cloudless zones, the land or ocean surface beneath. Each picture covers an area 2,000 miles square and takes 260 seconds to transmit from the satellite. Objects in excess of two square miles in area can be identified in these pictures. Overlapping frames are joined together to form a composite cloud photograph or mosaic. The pictures are easy to work with, provide excellent resolution or detail and suffer little distortion, even at the extreme edges. However, they are available only during the sunlight hours and, within the intervening twenty-four-hour period, rapid

development or movement of a system may take place undetected. Also, as reflection-scattering processes are exceedingly complex, no quantitative data relating to the cloud structure are available. In other words, the cloud colour is not directly related to its physical structure.

To overcome the difficulties associated with television photographs, other sensing devices have been developed. For example, NOAA 2 carries a scanning radiometer for night as well as daytime photography, by sensing reflected radiation. This instrument is sensitive to energy in certain selected wavelength intervals and composes pictures by continually scanning a narrow field of view from horizon to horizon at right angles to the path of the satellite. Thus, as the satellite moves forward, an image is formed which consists of a continuous strip rather than an individual frame as in the case of the television picture. However, the image suffers from distortion at the edges and a consequent reduction in resolution. The two wavelength intervals sampled by the NOAA 2 scanning radiometer lie in the visible spectrum and the infra-red, respectively. Thus while the former picture contains exactly the same information as a television photograph, the latter reflects the actual cloud structure as the energy received is directly proportional to the temperature of the emitting body. Very high, cold cloud tops appear very white; warm clouds, grey; and the warmer earth, black. In fact the temperatures of the cloud tops, or land or sea surfaces can be estimated to within an accuracy of 2-5°C.

The two great advantages, then, of infra-red pictures obtained using a radiometer are firstly, that they are obtained twice a day (as both night as well as daytime images are possible) and secondly, a quantitative estimate of cloud structure is given.

### **Interpretation of Satellite Data**

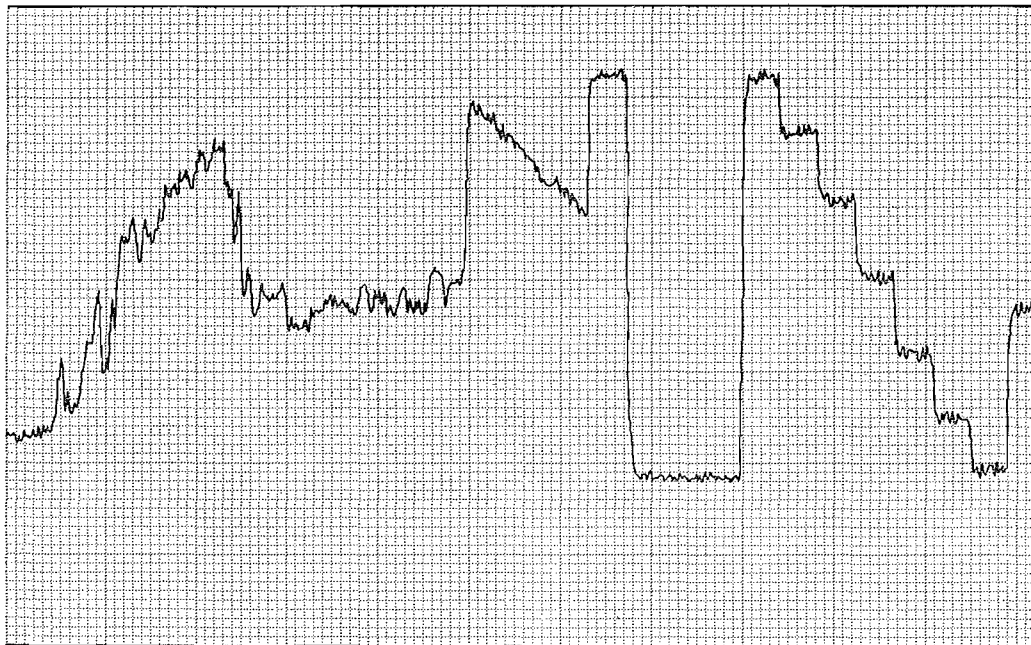
The usefulness of satellite photographs, especially television photographs, is directly determined by the accuracy with which they are interpreted. Interpretation is mainly a matter of experience and it has improved as more data became available.

Brightness, pattern, structure, texture, shape and size are the most important characteristics of clouds as they appear in a television photograph. Using these characteristics it is possible to identify cloud types, to detect the presence of cloud layers of different height and to make inferences about the temperature, wind and stability fields of the atmosphere. Often the highly reflective desert terrain (in particular, salt pans and lakes) presents problems in picture interpretation. The meteorologist must be very familiar with terrain patterns and their seasonal variation to correctly identify clouds superimposed over these backgrounds. For example, fog areas may be easily confused with salt pans (see 'A' on the satellite photograph, Plate 2).

It is possible to use the large-scale cloud patterns and distributions observed in mosaics to identify the position of cold fronts, jet streams, ridges of high pressure, cyclonic disturbances (lows) and tropical cyclones. Fronts are easily identified in satellite pictures (see 'B' on the satellite photograph, Plate 2) and their strength gauged from the appearance of the clouds comprising the frontal band. Development and intensification of the system often appears as a broadening of the frontal band. Cyclonic disturbances of all scales appear as a typical vortical cloud pattern (see 'C' on the satellite photograph, Plate 2). The characteristics of such patterns can be used to diagnose the stage of development of a storm. This fact is extremely useful in the case of tropical cyclones, enabling early warning of severe storms, and even providing some estimate of the maximum winds likely to be experienced. The great value of satellites in providing early warnings of severe cyclones was clearly demonstrated between December 1971 and June 1972 when no less than twenty menaced the Australian region.

The illustration designated Plate 3 shows a night-time infra-red scanning radiometer picture. A low is centred at point 'A', just south of Cape Leeuwin, and a front extends across the south-western quarter of Western Australia. Temperature data obtained on one scan is presented in the reproduction on page 54 of the actual temperature chart and shows that to the west of Southern Cross (point 'B' on the satellite photograph, Plate 3) cloud top temperatures are very cold, thus indicating an intensification of the frontal band in this area. Such detail is not possible using television camera images. To date only a relatively

small amount of this new scan type of data has been available. In the near future fully-mapped cloud-top temperature fields, sea and land surface temperature fields and vertical profiles of temperature will be available on a day-to-day basis to the meteorologist. They will inevitably reduce even further, the blank areas of the surface weather chart presented to the meteorologist for analysis.



Reproduction of one scan line obtained from the high resolution infra-red radiometer carried by the Nimbus 4 satellite. The peaks correspond to the cold, white cloud tops shown in Plate 3 and the troughs to the warmer land surface.

## Chapter II—continued

### Part 3—The Vegetation of Western Australia<sup>(1)</sup>

With an Account of the Family Proteaceae

Contributed by P. G. Wilson  
(Western Australian Herbarium, Department of Agriculture)

#### THE FLORA OF WESTERN AUSTRALIA

The State of Western Australia occupies about one-third of the land area of the continent and its flora contains approximately half of the total number of vascular plant species. It consists of about 6,500 flowering plants (angiosperms), 15 gymnosperms (e.g. cycads and conifers) and 50 ferns. The families of flowering plants which predominate in number of species in Western Australia are those which also predominate in the other States, e.g. the Myrtaceae, Leguminosae, Proteaceae, and Epacridaceae. None of the larger families is restricted in its distribution to Australia although several, such as the Styliadiaceae, Goodeniaceae and Epacridaceae, are only poorly represented elsewhere. Below the level of the family there are large groups which are endemic to Australia and it is often these which give the individuality to the Western Australian vegetation. Examples are the Chloanthoideae (Verbenaceae), Prostantheroideae (Labiatae), Persoonieae and Banksieae (Proteaceae), and the Epacrideae (Epacridaceae). All these groups are Australia-wide in distribution and, except for five small families, endemism in Western Australia is at the genus and species level only.

The distribution of species is of course dependent on the past tectonic and climatic history of the continent, as well as on present-day climatic and edaphic (soil condition) factors, and a knowledge of this history contributes to an understanding of the present-day plant geography.

It is generally accepted that in the Palaeozoic era Australia was united with the continents of southern Africa, South America and Antarctica into a common land-mass known as Gondwana. During this period the countries had a common flora exemplified by the *Glossopteris* elements (which were fern-like plants) but they lacked any flowering-plant ancestors. The break-up of the Gondwana land-mass began during the Jurassic era, also before the emergence of flowering plants in Australia. Thus, if this is correct, any present-day relationship between the floras of the southern continents must be due to causes other than that of a direct land connection in the past.

Following the break-up of Gondwana and the dispersal of the southern continents, it is thought that Australia came into contact in the north-east with a continent made up of New Guinea and a land which, in part at least, now lies beneath the ocean in the Coral Sea zone. It was presumably from this continent that, towards the end of the Cretaceous period, the early flowering plants and conifers entered Australia.

The flora of the early Tertiary era consisted partly of plants now associated with the New Guinea rain forests (the cinnamomum flora), partly of an apparently cool temperate assemblage, and partly of the typical Australian element. In the first category were found such broad-leaved genera as *Cinnamomum* and *Tristania*; in the second, the genera *Dacrydium*, *Podocarpus*, *Araucaria*, *Nothofagus*, and *Phyllocladus*; and in the third, *Banksia*, *Eucalyptus*, *Callitris* and *Casuarina*.

<sup>(1)</sup> See Appendix for additional information contained in earlier issues of the Year Book.

It is possible that a change from an equable climate to a markedly seasonal one in the middle Tertiary period caused certain genera to die out, to be restricted to refuges or to survive only in southern moist regions. In Western Australia the cinnamomum element was largely eliminated while the cool-temperate assemblage was much reduced. The genus *Nothofagus*, for instance, is now extinct in this State, while of *Podocarpus* only one species remains and this is restricted to the forests of the South-West. In contrast, the Australian-element diversified and adapted itself to the varied climatic conditions and to the impoverished soil which is general throughout Western Australia. It also gave rise to a flora resistant to fire and in some ways apparently, adapted to it. An example of this adaption is the ability of some eucalypts to regenerate from their epicormic buds or from their lignotubers. Other adaptations are seen in the woody fruits of some Proteaceae which release their seeds after burning, and in the stimulus fire has on the germination of seeds which are lying dormant in the soil.

During the later period of diversification the south-west region of Western Australia was probably effectively isolated from the east by a shallow sea which occupied the present Nullarbor Plain, while the arid interior also restricted transcontinental movement of species. The plants in this south-west district were therefore able to evolve in semi-isolation and this they did to produce a flora rich in both number of species and in percentage of endemics.

The families which have been most successful in the South-West as exemplified by both number of species and size of populations, are those which, as mentioned above, flourish over a large part of Western Australia, and also in the other States. Within these families, however, the genera are frequently endemic to the South-West Botanical Province, an area which extends from Shark Bay in the north to Israelite Bay in the south, and bounded inland approximately by the ten-inch isohyet. In the family Proteaceae the genera *Dryandra*, *Stirlingia*, *Synaphea* and *Franklandia* are endemic. In the Myrtaceae the genera *Conothamnus*, *Eremaea*, *Phymatocarpus* and *Regelia* are also limited to this region.

At the species level the endemism is even more marked and it is estimated that about 75 per cent of the species in the South-West Botanical Province are found nowhere else.

The five families which are endemic to Western Australia are also limited (or almost limited) in their distribution to the South-West Province. These are Cephalotaceae, Eremosynaceae, Emblingiaceae, Ecdeiocoleaceae, and Anarthriaceae. The first four families are monotypic (they have only one genus each with one species), while the last is monogeneric but with several species. *Cephalotus*, the Albany Pitcher Plant, is the only one of these endemics which is at all widely known. Its fame rests in its flask-shaped leaves with lids, which it possesses in addition to normal foliage leaves. The species is found in boggy, mineral-deficient situations, where the pitchers act as traps for insects, the flesh of which is absorbed and presumably provides the plant with additional nitrogen.

The genus *Eremosyne* is a low herb with insignificant flowers; it is known from only a small area in the Karri forests. Although considered to be distinct, both *Eremosyne* and *Cephalotus* are related to the large and widespread family Saxifragaceae, and presumably are segregates from the same ancestral group.

The only species in the Emblingiaceae, *Emblingia calceoliflora*, is a prostrate plant with small flowers. It is probably related to the *Polygala* family.

The species in the families Anarthriaceae and Ecdeiocoleaceae are all plants of the heaths, and in habit resemble the 'rushes' and sedges of the families Restionaceae and Cyperaceae to which they are undoubtedly related.

While the initial isolation of the flora (with its consequent diversification) of the South-West Province was due to tectonic, and secondarily climatic developments, it is likely that edaphic factors now also prevent the movement of species, for the soils of the Province are, on the whole, extremely deficient in those minerals required by most plants for normal growth. To this deficiency the native plants are adapted and it is in the areas of great deficiency that the flora exhibits in its heath plants some of its greatest diversity and display of colour.

THE FAMILY PROTEACEAE IN WESTERN AUSTRALIA <sup>(1)</sup>

The family Proteaceae is one of principally temperate distribution in the southern hemisphere. Of over 1,400 species in more than sixty genera, the greatest concentrations are in Australia (over 750 species) and South Africa (400), with lesser numbers in central and South America (90), the islands east of New Guinea (80) and New Caledonia (45). There are a few species in south-east Asia, New Guinea, Fiji and Samoa, New Zealand, the New Hebrides, and the central African highlands.

While there is an obvious link with South Africa in the great development of the Proteaceae, the separation of the two continents must have occurred early in the family's evolution. There are two sub-families, the Persoonioideae and the Grevilleoideae. The Persoonioideae are well represented in both South Africa and Australia, the only species elsewhere being a *Persoonia* in New Zealand. The more diverse Grevilleoideae are almost absent from South Africa, highly developed in Australia and are present in the other countries listed above. The Persoonioideae are the more primitive sub-family, and hence South Africa must have separated from Australia soon after the Grevilleoideae appeared.

Within Australia, over 500 of the 750 species occur in Western Australia—the majority of them endemic in the South-West Province. They are spread among sixteen genera ranging in numbers from *Grevillea* with over 150 species down to several with two species, e.g. *Franklandia*. Four genera are endemic in the South-West Province—*Dryandra* (55 + species), *Synaphea* (10), *Stirlingia* (4), and *Franklandia* (2).

Proteaceae may be found in most parts of Western Australia but are rare in certain habitats, e.g. on the coast, in saline areas and in the desert. So far only a dozen species have been recorded in the desert regions. A higher number occurs in the tropical north and the North-West, mostly species of *Grevillea* and *Hakea*. The genus *Stenocarpus* in Western Australia is found only in the Kimberleys. By far the greatest concentration of the family is in the South-West Province.

Besides the four endemic genera, the Western Australian species of eight other genera are also endemic in or near the South-West Province—*Banksia*, *Conospermum*, *Isopogon*, *Lambertia*, *Persoonia*, *Petrophile*, *Strangea*, and *Xylomelum*. Only one of seventeen *Adenanthos* species is non-endemic (also in South Australia) while over 100 of the 150 *Grevilleas* and seventy-five of some ninety *Hakeas* are endemic here. Thus approximately 450 of over 500 species of Proteaceae in Western Australia are restricted to the South-West Province. This high degree of endemism is typical of the South-Western flora as a whole.

Morphological diversity is a feature of this family. Although all are perennials, they range in Western Australia from tall trees (*Banksia littoralis* reaches 20 metres) to prostrate shrubs. Among the latter are the curious prostrate *Banksias*, one of which (*B. repens*) even has underground creeping stems so that the leaves and flowers appear to be separated. Twiners are unknown in the family, but several species in Western Australia are trailing plants, e.g. *Grevillea nudiflora* and *Adenanthos apiculata*.

Adaption to fire is reflected in the structure of the stems and rootstocks of the Proteaceae. Some species are killed by fire and regenerate from seed, while others have the foliage and smaller branches killed but then produce new growth from the main stock. This may be on above-ground stems or an underground lignotuber. The particular adaption is usually constant for any species and is a useful taxonomic character. It is intriguing that in species which regenerate from the old stock, seed-set is usually poor while in species killed by fire, seed-set is substantial. Some of the latter species are quick-growing and relatively short-lived, flowering profusely for a few years after a fire and then becoming crowded out by slower-growing but longer-lived species, to survive as seed in the soil until the next fire. Such are certain species of *Conospermum* (Smokebush).

Leaf variety is extraordinary and often occurs on one plant. Besides diversity between species, the seedling leaves are often quite different from the adult ones, e.g. in *Synaphea*. *Hakea trifurcata* even has two leaf-types on the mature plants—flat, obovate ones and terete ones, the latter being simple or divided. Another *Hakea* is unique in being the only native plant in Western Australia to have variegated leaves. *Hakea victoriae* has oblong, undulate, prickly-toothed, juvenile leaves which are all green, but the adult

(1) Contributed by A. S. George.

leaves are broadly rounded, concave and sharply-toothed, the upper half green and the lower half coloured. In the first year the colour is cream, but it subsequently deepens through orange to red. The leaves last for about five years and the plants form striking columns among the heath of their south coastal habitat.

There is a wide range of inflorescence types, from solitary, axillary flowers to spikes, heads or racemes, the latter often paniculate. Some species are cauliflorous. Especially in *Banksia* and *Dryandra* the large inflorescences superficially resemble large single blooms but, in fact, they contain many flowers—in the case of some *Banksias*, several thousand per spike. The perianth structure is basically similar in all genera but is actinomorphic in some species and strongly zygomorphic in others. The ovary probably shows the greatest diversity in the floral morphology and it is the basis for the division of the family into sub-families and tribes. A curious development is seen in the form of the style. Although the apex is usually variously expanded or modified into an apparent stigma, only a very small area, usually a groove, is stigmatic. The function of the style end in most cases is to receive pollen from the anthers before the flower opens and then to present it to the pollinator. The stigmatic area becomes receptive later, so that self-pollination is avoided. While this occurs in many genera, in *Synaphea* the pollen is mechanically ejected. The stigma forms a door, held under tension, across the throat of the freshly open flower, and when touched flicks back while at the same time the anthers eject the pollen.

However, pollination in the family is still largely an unexplored field. Some species are known to be bird or insect-pollinated, while small marsupials visit some inflorescences, e.g. of *Banksia* species. Some showy species have prominent inflorescences, brightly coloured to attract birds and insects, but others have them concealed within the bush, e.g. *Banksia baueri*, *Conospermum petiolare* and *Strangea cynanchicarpa*. Others are prostrate species with the inflorescences on or close to the ground, e.g. *Dryandra nivea* and *Grevillea dryandroides*. It is possible that these are pollinated by small marsupials.

The attraction for the pollinator is not always apparent. With showy flowers, colour is probably important, and most colours are to be found in the family. Red, orange, yellow, pink and white are common colours, but browns and greens also occur. Blue and mauve are perhaps less frequent in Western Australia than in some other families, but several *Conospermum* species have bright blue flowers, while *Hakea lehmanniana* also is usually pale blue.

Scent is a lure in many species. It is often associated with nectar production which is quite heavy in some instances, e.g. several *Banksias*. Such flowers may have a sickly-sweet perfume, and a few are quite foetid, e.g. *Grevillea leucopteris*, which is a white-flowered species of the northern sandheaths, and the red-flowered *Hakea rhombales* of the desert. Other Proteaceae have a delicate sweet perfume, while a strong vanilla-like odour is produced by *Franklandia triaristata*.

The most fascinating variety of all is probably that of the fruit which assumes a multitude of forms in the different genera. In the Persoonioideae it is an indehiscent one-seeded nut or drupe. Seven of the eight Western Australian genera in this sub-family have dry nuts of various forms—top-shaped or barrel-like, often flattened. An extraordinary fruit is that of *Franklandia triaristata* in which the narrow, cylindrical nut is surmounted by a long, plumose column which itself is produced into three long awns, the whole fruit some fifteen centimetres long. The drupe of *Persoonia* has a very hard endocarp about the seed and is surrounded by a succulent exocarp. This is the only genus in Western Australia with a succulent fruit.

The Western Australian species of the Grevilleoideae have dry follicles which mostly open regularly to release two seeds. Only the northern *Stenocarpus* has more ovules (6-14). The follicles in *Banksia*, *Dryandra*, *Hakea*, *Lambertia* and *Xylomelum* become woody and usually persist unopened on the plant until their removal or until the death of the plant. These woody follicles require up to a year to reach maturity. In some species they have adapted to fire to the extent that it is essential for the opening of the fruit; even the normal death of a branch or of the whole plant will not cause them to open. A fire will do so immediately.

In *Grevillea*, and *Lambertia* the follicles are coriaceous but not woody, and usually open as soon as the seeds are mature, this usually taking only a few months.

In most of our Proteaceae, seed-set is very poor when compared with the number of flowers. The extreme cases are some *Banksia* species in which the spikes may contain up to 2,000 flowers but only 10-20 follicles are produced. In fact many spikes set no fruit at all. In some genera the seed-set may appear to be substantial, but examination of the fruit shows that many contain no viable seed, e.g. in *Conospermum*.

Economically the Proteaceae are of limited value in Western Australia. Few species are trees, but several *Banksias* have attractively-grained timber and find a limited use in furniture construction. More important is the use of many species in honey production. Both nectar and pollen are produced, especially by species of *Adenanthos*, *Banksia*, *Dryandra*, *Grevillea*, *Hakea* and *Lambertia*, and major flows are produced by a few species.

The aesthetic factor is also important. The family provides a large proportion of the colourful wildflowers for which the South-West is famous and which many tourists travel to see in the spring. Further, the flowers (and sometimes the fruit) of many species, especially of *Banksia* and *Dryandra*, are cut for sale either fresh or dried on the local, interstate and overseas markets. Cultivation of Proteaceae as garden subjects is also increasing, although many are difficult to grow.

## VEGETATION PROVINCES

It has been said that of all the factors which determine and control the vegetation of the earth, the climatic factor is the most important, and rainfall and temperature are the most important of the climatic elements. In Western Australia there are three distinct climatic regions. These are the tropical north with a short, hot, rainy period, the temperate south with a rainy period occurring in the coldest months, and the arid interior which has no regular rainfall pattern. The flora is remarkably different within these three areas which for this reason have been used as natural divisions of the flora. Diels referred to them as the Northern, the South-West and the Ereman Provinces. A map showing the boundaries of the three Provinces appeared in the *Western Australian Year Book*, No. 7—1968 and earlier issues.

The description of the climatic and vegetative characteristics of these Provinces and their Formations contained in the following sections is by the late C. A. Gardner, formerly Government Botanist of Western Australia.

### Climatic Characteristics

The *Northern Province* extends over the Kimberley Division to some few miles southward from the Fitzroy River, thence contracting into a narrow coastal isthmus in the vicinity of the Eighty Mile Beach, and expanding southward to include the De Grey River and the greater part of the Fortescue system. It is the area which, lying north of the Tropic of Capricorn, receives its rain entirely in the summer months, with a seasonal rainfall during the four wettest months ranging from about seven inches in its southern portions to over forty inches in parts of the Kimberley Division, and has an annual mean maximum temperature of 32·2°C or over, although during the growing season temperatures may be even higher. The season from the commencement of April until the end of October is relatively rainless.

The *South-West Province* extends from the southern end of Shark Bay in the north to Israelite Bay in the south. On the western and southern sides it is bounded by the ocean, while its inland boundary passes close to Mullewa, Morawa, Koorda, Bencubbin, Burracoppin, Hyden, Ravensthorpe and Grass Patch. It is pre-eminently the winter rainfall province which receives its maximum rainfall from May to August inclusive and, with the exception of the southern portion, experiences a seasonal drought extending from November to March or April. The average maximum temperature is less than 26·7°C with much lower temperatures during the growing season.

The *Eremean Province* lies between the Northern and the South-West Provinces, and occupies approximately two-thirds of the total area of the State of Western Australia. It is intermediate in character between the other two; its rainfall is received either from extensions of summer rainfall southward (and this makes up the greater portion, especially such rainfall as is received from tropical hurricanes during the late summer months), or in the south from extensions of the winter systems, while, rarely, a general rainfall may occur throughout.

### Vegetative Characteristics

The *Northern Province* is essentially the savannah-steppe Province in that a herbaceous ground-covering mainly composed of grasses occurs. This varies from the rich grasslands of the Kimberley to the harsh spinifex 'steppe' of the country southward from the Fitzroy, broken only by the alluvial grassland plains of the De Grey and Fortescue districts, especially the Roebourne Plains. Scrubland as such is unknown, except to a very limited extent in the rough sandstone range country of north-west Kimberley. Forests as such do not occur and Mulga too is absent. Floristically the Province is characterised by the part played by the 'Indo-Melanesian Element' in its constitution. In places this element may predominate to the extent that amongst the trees *Eucalyptus* plays a secondary role, and deciduous trees are prominent. The grotesque Baobab is common, together with various soft-wooded trees, while the herbaceous growth is rich in members of the *Hibiscus* family and several others. With the exception of the river bank and swamp formations, most herbaceous growth is either dead or resting during the winter months.

The *South-West Province*, on the other hand, is characterised by a total absence of the Indo-Melanesian influence, and its flora bears a distinct southern or 'Antarctic' impress. Trees and shrubs predominate with a marked diminution of grasses, and there is no true grassland. The herbaceous species are of winter growth, and the plants remain dormant during the dry summer months, especially the species of *Acacia* and Casuarinaceae. The Proteaceae, which assume a minor role in the North, here hold sway, as do the Myrtaceae and Leguminosae. The principal formations are forest woodland and scrubland, with extensive tracts of sand heath. Mulga and spinifex are absent and the various salt bushes either exist as inhabitants of the physiologically dry salt pans, or occur only marginally. There is a distinctive plant architecture among the woody plants in which the effect of the dry season is apparent.

The *Eremean Province* is again intermediate. Floristically it is characterised by the 'Australian Element', recruited from northern and southern influences, and those hardy species which have arisen in response to an adverse environment. Notably there is an increase in the spacing of plants due to root competition between neighbours. The result is a series of 'open formations'; Mulga bush, consisting of leafless species of *Acacia* with resinous or stiff leaf-like phyllodes; a predominance among the shrubs of species of *Acacia*, *Cassia* and the attractive species of *Eremophila*, notable for the size and colour of their blossoms. The Northern influence is expressed most strongly by the Spinifex (*Triodia*) which is the dominant tussocky grass of the lighter and stony soils, while the Mulga occupies the more closely-grained soils, the true mulga (*Acacia aneura*) being restricted to hard-pan soils. The Southern Element is most strongly asserted in the loose red sand and around granite rocks, the former carrying those sand-loving species for which the South-West is famous (even the Blackboy extends into the heart of the Erema) while the species of the granite rocks owe their existence to an improvement in the water content of the soil in addition to the shelter and shade provided by declivities. In the northern portions of the Province we find, where watercourses provide permanent pools and moister conditions than elsewhere, an intrusion of the Northern Element, especially in the grasses and the herbaceous flora generally. Savannah and steppe occur in the north, Mulga and spinifex steppe occupy the middle areas, while in the south we have woodland formations, with some degree of heath development. The salt soils carry distinctive associations of salt-tolerant plants in which salt bushes are predominant, and this same formation occurs on the limestone soils of the Nullarbor Plain. Forests are absent.

## VEGETATION FORMATIONS

Within the three large Vegetation Provinces plant species are grouped into associations which are basically dependent on soil type. The soil, within the limits of each rainfall zone, governs the amount of water available to the plants and influences the habit and character of the plant cover. Thus there are Forest Formations, Woodland Formations, Shrub Formations and many others.

**The Forest Formations of the South-West**

*The Jarrah Forest.* The most important of the forest formations of the South-West is that dominated by the Jarrah (*Eucalyptus marginata*), which reaches its greatest development in the lateritic soils from the Darling Scarp eastward to the twenty-inch isohyet, although it does occur also on the sandy coastal soils. Within the forest area Jarrah forms an almost pure stand, but along watercourses Blackbutt (*Eucalyptus patens*) is common, while Marri (*Eucalyptus calophylla*) is almost always present where sandy soils occur. In the richer soils of the valleys, Wandoo (*Eucalyptus redunca* var. *elata*) and Powder Bark Wandoo (*Eucalyptus accedens*) commonly occur, the latter being usually associated with granite outcrops. The understorey of the Jarrah forest consists principally of *Banksia* and the related *Persoonia*, *Hakea* and *Dryandra*, together with the Christmas Tree (*Nuytsia floribunda*), Sheoak (*Casuarina fraserana*), Blackboy (*Xanthorrhoea preissii*) and *Zamia* (*Macrozamia riedlei*) in varying associations.

*The Karri Forest.* To the south of the Jarrah forest, in an area where the rainfall is heavier and more evenly distributed throughout the year, the Karri (*Eucalyptus diversicolor*) forms almost pure stands in certain light types of soil, mainly on the hillsides. Associated with it in the valleys is Bullich (*Eucalyptus megacarpa*), a tree which closely resembles Karri, while Jarrah and Marri occur where there are gravelly or sandy soils. The understorey consists of the Karri Sheoak (*Casuarina decussata*), Peppermint (*Agonis flexuosa*), Warren River Cedar (*Agonis juniperina*), Bull Banksia (*Banksia grandis*) and River Banksia (*Banksia verticillata*). The shrubby components are Karri Wattle (*Acacia pentadenia*) and Hazel (*Trymalium spathulatum*) with *Hovea*, *Crowea* and *Boronia* providing masses of colour in the flowering season.

*The Tingle Forest.* Around the lower reaches of the Frankland River, the Karri trees are largely replaced by Red Tingle (*Eucalyptus jacksonii*) occurring mainly on the slopes and tops of hills, and Yellow Tingle (*Eucalyptus guilfoylei*) found mainly in the valleys and low situations generally. The associated vegetation is almost identical with that of the Karri forest.

*The Wandoo Forest.* There are few large areas of true Wandoo forest in the South-West, although the tree is widely distributed in the country to the north and east of the Jarrah belt. Where the Wandoo penetrates into the Jarrah forest it is associated with an understorey which, though closely resembling that of the Jarrah forest, lacks *Persoonia*, Sheoak and Christmas Tree. In the more open stands to the east, however, it is associated with a much reduced shrubby undergrowth, and frequently with Jam (*Acacia acuminata*). Within the Wandoo forest, the Mallet species *Eucalyptus astringens* and *E. gardneri* form dense associations on stony hillsides, while in the southern portion of the forest the Swamp Yate (*Eucalyptus occidentalis*) occurs freely on the low-lying country.

*The Tuart Forest.* The Tuart (*Eucalyptus gomphocephala*) occurs in a typical forest formation between Ludlow and Busselton where it is associated with Peppermint, species of *Banksia* and a large number of herbaceous species. The formation extends northward as far as the Hill River and throughout its occurrence is restricted to limestone soils. To the north of Ludlow the forest gradually merges into a sparse woodland formation with an abundance of shrubby undergrowth and relatively few herbaceous species.

**Woodland Formations**

The Woodland formations differ from the forests of the South-West in being less uniform. Whereas the forest is invariably dominated by a single species, the woodland on the other hand consists of a series of co-dominant species which occupy relatively small

areas in the intricate pattern which makes up the mosaic of the Woodland formation. The principal trees are the Salmon Gum (*Eucalyptus salmonophloia*), Gimlet (*Eucalyptus salubris*), Morrel (*Eucalyptus longicornis*) and Yorrel (*Eucalyptus gracilis*). Many other species are locally dominant and the undergrowth consists of species of *Acacia*, *Grevillea*, *Hakea* and mallee forms of *Eucalyptus*. This formation is chiefly South-Western, but it extends also into the Ereman Province where, although the tree species remain fairly constant, the undergrowth changes in character with an increasing number of the species of Poverty Bush (*Eremophila*), Saltbushes (*Atriplex*) and Bluebushes (*Kochia*).

### Shrub Formations

*The Mallee Eucalypts.* The mallee form of *Eucalyptus* is found in many districts from the west coast to the South Australian border, and it is absent only from the forest areas of the South-West. Mallee thickets reach their greatest development in the alluvial soils, but they occur in almost any type of soil. In the lighter soils they frequently occur in association with other shrubs, particularly tea tree which at times actually dominates in a sandy habitat.

*The Mulga Bush.* The Mulga bush occupies a large part of the Ereman Province. This formation extends almost without interruption from the west coast between Onslow and the Wooramel River eastward as far as New South Wales and, although its species may change, it maintains its character and identity throughout. The species of *Acacia* referred to as Mulga have a greyish resinous foliage and it is the dominance of these species, more than anything else, which gives the Mulga bush its character. Component shrubs are rather widely spaced. Another characteristic of the formation is its differential response to rain, a winter precipitation producing an immediate germination of vast numbers of annual and perennial herbs and shrubs, while summer rains promote a vigorous growth of grasses.

*The Sand Heath.* It is in the sand heath formation that the flora of the State displays the greatest number and diversity of its species, as well as the greatest development of colourful and interesting endemic forms. The most extensive sandplains are found at the northern and eastern extremities of the South-West Province, between Northampton and the Murchison River and from Ravensthorpe to Israelite Bay. They occur also on the eastern fringes of the South-West Province, and in the Ereman Province where important areas occur at Comet Vale and to the east and south of Southern Cross.

### Savannah and Steppe Formations

Except for a weak development in Jam and York Gum (*Eucalyptus loxophleba*) country in the South-West, savannah and steppe formations are restricted to the Northern and Ereman Provinces where there are the necessary climatic conditions of summer rains alternating with a dry cool winter. On river flats the dominant species is the Coolabah (*Eucalyptus microtheca*) with a grass element consisting of species of *Sorghum* and Citronella Grass (*Cymbopogon* spp.). In the sandier soils Spinifex (*Triodia* spp.) is the dominant grass, while the tree layer consists of a number of bloodwoods and the Micum tree (*Eucalyptus brevifolia*). On the basalt soils the Grey Box (*Eucalyptus tectifica*) is associated with certain cabbage gums and Kangaroo grass (*Themeda australis*). An interesting type of open savannah occurs in coastal country between the De Grey and Fitzroy Rivers and is referred to as Pindan. In this formation, several species of *Acacia* are associated with a large number of grasses both annual and perennial although in recent years the introduced Buffel Grass (*Cenchrus ciliaris*) is dominating the grass cover.

Southward from the Fitzroy River is the large area of Spinifex steppe dominated by *Triodia*, where very few trees occur. The shrubs are mainly species of *Acacia* and *Cassia*. This formation gradually merges into the more open desert country of the interior, an area which is only now becoming known botanically.

## Chapter II—continued

### Part 4—The Fauna of Western Australia

Contributed by

W. D. L. Ride (Director of the Western Australian Museum)

and

D. L. Serventy (Officer-in-Charge, W.A. Station, C.S.I.R.O., Division of Wildlife Research)

#### DISTRIBUTION

##### Terrestrial Vertebrates

An observer who looks carefully at the fauna of a large land mass like the Australian continent will soon discover that its animals are not distributed uniformly throughout it. He will find that groups of species which are characteristic of some places are missing from others. This is because the distribution of animals results both from their response to the physical (*i.e.* ecological) conditions of their environment (and these are not uniform from place to place), and from their past histories. For example, the presence of routes along which a species could have moved in the past, and of barriers which would have made its movement from one place to another impossible, decide whether any species could have reached a particular locality by today. But whether it has persisted there until today depends upon local conditions having been suitable for it.

The relationship between the distribution of a species and the character of its environment may be demonstrated dramatically and most easily by comparing the distribution of animals with that of climate, and in particular with its components of temperature, rainfall and the time of the year at which rain falls. In Western Australia many species lie within one or other of the boundaries of two rather different climatic regions. These are the South-West with its regular and plentiful rainfall during cold winters, and the Kimberley with regular, plentiful rainfall during hot summers. The remainder of the State receives intermittent and unreliable rainfall in quantities which vary widely; some parts of this area (*e.g.* the Pilbara) receive their small amount of rain principally in the summer and other parts (*e.g.* the Nullarbor) in the winter.

An analysis of most of the Western Australian groups of vertebrate animals shows that they can be referred to three faunal assemblages characteristic of these climatic regions. These assemblages are called *faunas* and have been named by zoogeographers *Bassian* which, in this State, is the fauna characteristic of the South-West; *Torresian* which, in this State, is characteristic of the Kimberley; and *Eyrean* which is the fauna which occupies the land between. While the composition of a fauna is, generally speaking, characteristic of the area in which it occurs, the occurrence of a particular species in a fauna does not mean that it will not be found in another because each of the faunas has several elements which are sufficiently wide in their requirements for them to occur as 'foreigners' in the faunas of neighbouring regions. Examples of these are the species with predominantly Torresian populations (and apparently histories of origin) which are found today in the otherwise Eyrean fauna of the Pilbara district of the North-West; and various Eyrean species which occur in the Bassian fauna of the South-West.

Among the birds the sharpest faunal break is between the Torresian fauna of the Kimberley division and the Eyrean fauna of the Pilbara. The Kimberley is the headquarters in Western Australia of the Scrub Fowl (*Megapodius freycinet*), the Fruit Pigeons (Ptilinopinae), Lorikeets (*Trichoglossus* and *Psittenteles*), the White Cockatoo (*Cacatua galerita*) and most of the Grass Finches. The Torresian species which penetrate further southwards include the Brolga (normally only to Onslow), White-breasted Wood Swallow (to Shark Bay), and the Brown Honeyeater (right through to the South-West).

Among mammals there seem to be a few truly Torresian species in Western Australia. Examples would be the Fruit Bats or Flying Foxes (*Pteropus* and *Macroglossus*), the Little Rock Wallaby (*Paradorcas concinna*), the Jungle or River Wallaby (*Macropus agilis*) and the Antelope Kangaroo (*Macropus antilopinus*). On the whole most of the mammal species which occur in the Kimberley seem to be characteristic of that part of the Eyrean fauna inhabiting the country which receives intermittent rainfall during the summer.

Even among birds, the boundary between the majority of the Eyrean species and the bulk of the Bassian species is less well defined than that which separates Eyrean and Torresian faunas as there is a good deal of overlapping. For example, the line which separates the woodland eucalypts and the mulga, the so-called 'mulga-eucalypt line', is the extreme limit of most Bassian species, though many do not range inland beyond a line connecting Geraldton, Moora, Northam and the Stirling Range. The mulga-eucalypt line separates, to quote an example, the main distributions of the Grey Kangaroo (Bassian) and the Red Kangaroo (Eyrean). This line is the northern limit of other well known Bassian species such as the Red Wattle Bird.

The South-West of the State has representatives of many well known Bassian species also found in south-eastern Australia. These include among birds, the Brush Bronzewing, White-tailed Black Cockatoo, Western Rosella, Scarlet Robin, Yellow Robin, Southern Emu-Wren, Silvereye, White-naped Honeyeater, Western Spinebill, New Holland Honeyeater and Red-eared Firetail. Among mammals there are the Pigmy Possum, the Wambenger, the Grey Kangaroo, the Tammar Wallaby, the Brush Possum and various dunnarts (marsupial mice, *Sminthopsis*). Among frogs there are various *Crinia* and *Heleioporus inornatus* and *australiacus*; and fishes such as *Galaxias* and *Nannoperca*. However, there has been an extensive intermingling of Eyrean and Bassian elements in the South-West on a scale not paralleled in south-eastern Australia. In the South-West we have a blend of faunas in the sclerophyll forests which, though essentially Bassian in character, contain such Eyrean intrusives as the Purple-crowned Lorikeet, the Twentyeight Parrot, the Rufous Tree-creeper, the Western Warbler, the Banded Blue Wren and the Red-tipped Diamond-bird.

It must be recognised also that the distribution of animals that we see today may be a very recent pattern, and subject to continual fluctuation. Studies of fossil pollen in the South-West suggest there have been fluctuations in the relative abundance of Jarrah, Marri and Karri trees over the last few thousand years. Even more marked fluctuations in vegetation may have been produced by climatic changes accompanying glaciation and deglaciation in high latitudes and altitudes over the past 2 million years. Marked changes in vegetation would usually be accompanied by changes in fauna. We know that the Marsupial Wolf or Tiger (*Thylacinus*), the Koala (*Phascolarctos*) and other marsupials, some of them now extinct throughout their ranges in Australia, once lived in the South-West, and it is possible that climatic changes were responsible for their vanishing from that area of Western Australia.

Climatic alterations, on a minor scale, are constantly going on. In the past half-century, or longer, there has been a considerable change in northern Europe, Asia and America, an amelioration in some parts and a drying-up in others, with widespread effects on the distribution of animals. Something similar appears to have been taking place in Western Australia. Many dry-country bird species, of the Eyrean faunal assemblage, have made notable extensions of range into the south-west corner. These include the Galah, Little Corella, Budgerygah, Smoker Parrot, Crested Pigeon, Black-faced Woodswallow, Crested Bell-bird, Blue-and-white Wren, Black-throated Butcher-bird and Little Crow. The records of local naturalists, who keep district lists of local birds and mammals over a period of years, are very useful sources of data for plotting these changes. Frequent Museum surveys will provide more positive information.

In some cases distribution changes due to natural causes may be masked or modified through the alterations of habitat due to settlement. These habitat changes act to the detriment of woodland birds but favour open-country species (like pipits and plovers).

### Coastal Marine Fauna <sup>(1)</sup>

The nature of the coastal waters varies from the warm mangrove-lined mud flats of the north to the clean sandy bays and cool crystal-clear waters of the south. The types of coastal marine habitats depend on the range of tide, the exposure to oceanic swells, the sediments carried off the land by wind or river and some local biological activities such as reef coral or algal building. There is a gradual change in water temperature, salinity and other physical characteristics of the sea as one moves along the long Western Australian coastline of 4,350 miles; these changes reflect the nature of the adjacent water mass modified by local effects such as occur in large and small embayments, near river mouths or behind protecting headlands. The coastal waters may be divided into the following broad zones:

1. North: from the Western Australian-Northern Territory border to Cape Leveque with very broken coastline, a high tidal range, high runoff from well vegetated hinterland and no exposure to heavy oceanic swell.
2. North-north-west: from Cape Leveque to Cape Keraudren with eighty miles of low beach, a high tidal range, little regular runoff from desert sands which are blown in to the sea by the 'South-East Trades'.
3. North-west: from Cape Keraudren to North West Cape with an indented coastline, moderate tidal range, irregular runoff from some mountains and desert sands.
4. West-north-west: from North West Cape to Kalbarri with some high cliffs, a deep embayment (Shark Bay), moderate tidal range, irregular low runoff from little vegetated desert hinterland and exposed to the south-west oceanic swell. A barrier coral reef, unique in Western Australia, runs southward from North West Cape for nearly 100 miles.
5. West-south-west: from Kalbarri to Cape Naturaliste with fairly smooth low white sandy coastline and some limestone headlands; rainfall moderate with little runoff from coastal sands, water clear; tidal range low, offshore coastal reefs give some protection to the coast from the south-west swell.
6. South-west: from Cape Naturaliste to Israelite Bay with broken headland and surf beach formations, high south-west swell exposure, low tidal range, many inlets and low-volume river discharges.
7. South-east: from Israelite Bay to the Western Australian-South Australian border with smooth coastal outline of beaches and some cliffs, modified exposure to south-west swell, low tidal range and low rainfall runoff.

Certain coastal marine areas are special in the sense that they represent either a transition (*i.e.* rapid change of character) between two adjacent zones or possess unique features found in such combinations nowhere else on the coast. Examples of such special places are the coastal waters in the Broome to Derby region, around North West Cape, in Exmouth Gulf, in Shark Bay, the Perth metropolitan beaches (including Cockburn Sound), around Cape Naturaliste and around Cape Leeuwin.

The islands and reefs off the coast are also regarded as special because of their marine faunal peculiarities; for example, the Houtman Abrolhos, the Monte Bellos, the Rowley Shoals, the North West Cape Barrier Reef and the Recherche Archipelago.

The marine fauna of the north coast is distinct from that of the south coast although a few species do occur in both regions. The northern fauna is regarded as part of the Indo-West Pacific fauna, and the southern fauna of Western Australia as part of the southern Australian fauna. Some species of both these faunas extend and overlap along the west coast and there are several species which are endemic to this region only. One of these is the Western Australian commercial rock lobster *Panulirus cygnus* and another is the Western Australian commercial jewfish *Glaucosoma hebraicum*.

### Fauna of Inland Waters <sup>(2)</sup>

The inland waters are of many types and possess very varied faunas. They may be divided into four main ecological groupings: (1) the rivers of the Kimberley Division; (2) the river systems of the North-West from the De Grey to the Murchison; (3) the streams,

(<sup>1</sup>) Written in collaboration with Dr R. W. George. (<sup>2</sup>) Written in collaboration with Dr E. P. Hodgkin.

swamps, and lakes of the south-west corner; and (4) the temporary waters of the dry inland represented by two widely different habitats, (i) freshwater claypans and soaks (including man-made dams) and (ii) the salt lakes.

Marked seasonality characterises river flow in the Kimberley Division because of the alternation of regular summer rain with winter drought. The river pools and many isolated springs support an extensive fauna of fish, insects, molluscs and other animals, many of which show close affinities with the aquatic fauna of Asia and the Indo-Malay Archipelago.

The rivers of the North-West from the De Grey to the Murchison flow only intermittently, and between times of flood the fauna must survive in widely separated spring-fed pools in river beds. These pools, like those at Millstream Station on the Fortescue River, are often of striking beauty. Their fauna is relatively sparse as compared with the richer assemblages in the Kimberley rivers, the most conspicuous elements being a few fish species and a freshwater tortoise (*Chelodina steindachneri*) which is confined to the region.

The permanent hill streams of the South-West have a diverse arthropod fauna. Most of these are insects but, in addition, there are several species of freshwater crayfish and freshwater mussels in slower-running parts—Marron (*Cherax tenuimanus*) occur in permanent streams of deep water; Jilgie (*C. quinquecarinatus*) in shallow permanent water; Koonac (*C. preissi*) make burrows in the mud of swamps. A species of a closely related group, the so-called 'land-crabs' (*Engaewa*), has been recently discovered in the swamps of the South-West. The freshwater mussel *Westralunio carteri* is confined to the streams of the South-West. Most rivers stagnate and may become saline in summer; they are reduced to chains of large or small pools to which the fauna is restricted. The small transparent prawn *Palaemonetes* is often abundant in these pools. Shallow permanent lakes and swamps near the coast also have a fairly varied insect fauna, among which certain species of dragonflies are particularly abundant; at times there are enormous numbers of *Daphnia* and related small crustaceans.

The inland freshwater claypans are characterised by an interesting ephemeral fauna, mainly of phyllopod Crustacea. The most conspicuous is the large shield shrimp (*Triops australiensis*) but a variety of fairy shrimps (Anostraca and Conchostraca) occur also. The eggs of these creatures survive for years in the dried mud and development is rapid when the claypans fill after occasional rains.

The most conspicuous animals in the waters of the salt lakes are the brine shrimps (*Artemia* and *Parartemia*), which at times build up to such high population densities as to attract large flocks of Banded Stilts, which breed only in certain of the inland salt lakes. The Salt Lake Snails *Coxiella* reach their greatest diversity and abundance in the South-West saline lakes.

The fishes of the inland waters are described in a subsequent section.

## THE COMPOSITION OF THE FAUNA

The fauna of Western Australia includes representatives of all major phyla of the Animal Kingdom and individuals range in size from the Blue Whale (*Balaenoptera musculus*), the largest mammal that has ever lived, to minute single-celled protozoa which cannot be seen without a microscope. No estimate can be made of the number of species, and probably the number of species of insects alone out-numbers all the rest by a comfortable margin. Here we have not attempted to describe all phyla. The vertebrates are given fairly full treatment because they are obvious and familiar animals to most of us. The insects (mostly those of economic importance) are dealt with in Part 5 of this Chapter, and the remaining phyla are treated in a few paragraphs which confine themselves to groups of interest.

### THE VERTEBRATE FAUNA

#### Mammals

Unlike the birds and reptiles, wild mammals are not frequently seen in most parts of Western Australia. This is because most of the species are small and secretive and appear

only at night. However, there are exceptions and, as any traveller in inland and northern parts of the State can attest, kangaroos of one species or another can often be seen in large numbers during daylight hours.

Most species of mammals have distinct ecological preferences which allow them to be categorised into one or other of the three main faunal groups which are described earlier in this Part under the heading *Distribution*. For example, in the kangaroo family, the Tammar Wallaby (*Macropus eugenii*), the Quokka (*Setonix brachyurus*), and the Brush Wallaby (*Macropus irma*) are found only in the South-West or on certain isolated islands off the coast. Of these, the Brush Wallaby is closely related to the South Australian Toolache Wallaby (*Macropus greyi*) and the Tammar to the Flinders Island Wallaby and the now extinct St Peter Island Wallaby of South Australia. The most familiar kangaroo of the dry country with unreliable rainfall is the Red Kangaroo or Marloo (*Megaleia rufa*), while in the summer-rainfall country of the Kimberley Division we find such species as the Jungle Kangaroo or River Wallaby (*Macropus agilis*), the Little Rock Wallaby (*Peradorcas concinna*) and the Northern Nail-tailed Wallaby or Karrabul (*Onychogalea unguifer*). In addition to the species which sort out in this convenient way, there are others which are widely distributed and in fact occur as members of all three faunal assemblages. The most familiar members of the family which do this are the Euro or Biggada (*Macropus robustus*), the Boodie (*Bettongia lesueur*), and the Rock Wallaby (*Petrogale penicillata*). Of these, the Euro may still be found anywhere in suitable local habitats from the Kimberley to the South-West and inland across the South Australian border. At one time this was true also of the Boodie and the Rock Wallaby which, however, are today unfortunately absent from much of their former range.

So far, only the kangaroos have been mentioned but, in fact, representatives of all three major divisions of the mammals (*i.e.* monotremes, marsupials and placentals) occur in the State.

The egg-laying monotremes are represented by the Echidna (*Tachyglossus aculeata*), sometimes called Spiny Anteater or Porcupine. This curious and completely inoffensive animal is not uncommon in the country around Perth and it even appears on occasions in densely-settled suburban areas. In drier districts, its diggings, made in its search for insects, are familiar around rocky hills and breakaways.

Marsupials, or pouched mammals, occur in great variety in Western Australia. The kangaroos and wallabies, already mentioned, are the herbivorous members of the group. These animals are the Australian evolutionary equivalent of the antelopes, deer, and horses of the other continents and there is often an extraordinary similarity in structure between members of the kangaroo family and these other herbivores. These similarities extend even to such details as the physiology and shape of the stomach and other organs of digestion. The reproductive systems of marsupials and their physiology have also long been of great interest to biologists because they differ from those of other animals. For example, it is now known that in the Quokka, and some other wallabies, the adults mate again immediately after the birth of the 'joey'. The embryo which is the product of this second mating does not develop immediately but is held in a dormant state in the female system. However, if the first young joey is lost from the pouch, this dormant embryo immediately begins to develop and a second joey is produced after a minimum period of time.

In Western Australia the kangaroos and wallabies are all terrestrial (there are no tree kangaroos), and even their arboreal relatives, the phalangerids, are few in number as compared with other parts of Australia. The Brush Possums, the Pigmy Possums and the Ring-tails have Western Australian representatives, but the Koalas and the striped Possums are absent, and of the four species of flying possums of eastern Australia only one (*Petaurus breviceps*) occurs in Western Australia and that only in the Kimberley Division. Although the species of possums in Western Australia are few in number, there are some unique forms which are of great interest. One of these is the rare Scaly-tailed Possum (*Wyulda*) of the Kimberley; unlike other Australian possums this animal has a hairless scaly tail and only twelve specimens of it are known. There is also the curious and rarely-seen

Honey Possum (*Tarsipes*) of the South-West. Wombats are known to have occurred in Western Australia around the turn of the century and were thought to be extinct until a small colony was rediscovered in 1965 near Caiguna in the Eucla Division.

Although the large carnivorous marsupials no longer live in the State, the smaller representatives of this group are still fairly common. There are two separate species of native-cats, a southern species (*Dasyurus geoffroii*) and a northern one (*Dasyurus hallucatus*), as well as many species of smaller carnivorous and insectivorous forms. One of the smaller members of this family, the Dibbler (*Antechinus apicalis*), one of our least-known marsupials and last recorded in 1884, was rediscovered during 1967 at Cheyne Beach near Mount Manypeaks on the south coast. Studies are being made at La Trobe University on its biology.

The remaining group of marsupials is that commonly called the bandicoot family. One of these, the Pig-footed Bandicoot (*Chaeropus ecaudatus*) is probably the State's rarest mammal, but it once occurred in the Nullarbor region where its remains have recently been discovered in caves and two living specimens of it were collected by John Gilbert in 1841 some miles to the north-east of Northam. No confirmed record has been made of the species in Western Australia since then. On the other hand another species of bandicoot, the Quenda, or Short-nosed Bandicoot (*Isodon obesulus*), is one of the commonest of marsupials. Its scratchings are common in country gardens and the little animal is often run over and found dead on roads. It lives largely on insects, and being nocturnal it is seldom seen but it is nevertheless very common in many areas in the South-West.

The third main group of mammals is that of the higher mammals or placentals. Animals of this group occur in Western Australia in addition to the marsupials and the monotremes, and it always comes as something of a surprise to visitors (who generally have a strong preconception of Australia as a land in which all but introduced mammals and the Dingo are pouched mammals and monotremes) to learn that there are many species of Western Australian native placental mammals. In fact, if the seals, whales, and Dugong which occur around our coasts be counted, the species of native placental mammals outnumber the marsupial and monotreme species.

The composition of the mammal fauna is shown in the following table.

Kinds of wild mammals	Number of species occurring in Western Australia (a)	Kinds of wild mammals	Number of species occurring in Western Australia (a)
Monotremes ....	1	Introduced placentals—	
Marsupials ....	60	Rodents ....	5
Native placentals—		Land carnivores ....	2
Bats ....	23	Ungulates (Horses, Deer, Camels, etc.) ....	9
Rodents ....	24	Rabbits ....	1 17
Marine mammals :			— —
Seals (b) ....	2		
Dugong ....	1		
Whales ....	22		
Land carnivores—Dingo ....	1 73	TOTAL, ALL SPECIES	151
	—		—

(a) Total numbers of species are from *A Guide to the Native Mammals of Australia* by W. D. L. Ride. (b) Only resident seals are counted. Antarctic seals are occasionally 'shipwrecked' on southern coasts but these are clearly stragglers into the area.

Within Western Australia the best-established groups of native placental mammals, i.e. the bats and rodents, are distributed in much the same ecological manner as are the marsupials; some are dry country forms like *Leggadina hermannsburgensis*, the small mouse which builds mounds of pebbles on stony ridges<sup>(3)</sup>, others are predominantly animals of the wet tropics like the majority of the Fruit-bats or Flying Foxes (*Pteropus*

(3) It is suspected that these may be dew-traps.

and *Macroglossus*), while yet others are confined to the country of reliable winter rainfall in the South-West, e.g. the Southern Bush-rat (*Rattus fuscipes*). These native placental mammals are of great zoological interest because some of them, and in particular the native rats and mice, have been here for many millions of years and closely parallel (in adaptation to our stringent ecological conditions) their relatives in similar places in other lands. Thus, we have hopping-mice (*Notomys*), like miniature kangaroos, which are very similar in appearance and habits to the jumping-mice (*Zapodidae*) of the American and Eurasian dry-lands, and the jerboas (*Dipodidae*) of Africa; but it must be emphasised that the jumping specialisations of our own hopping-mice have evolved quite independently within Australia.

Some of our native placental mammals are economically important. Until 1963 a shore-based Western Australian fishery at Carnarvon depended upon the migrating groups of Humpback Whales (*Megaptera novaeangliae*) which move along the western coast between their feeding grounds in Antarctic waters and their breeding places in the tropics. Unfortunately, immoderate exploitation of the stocks (especially the breeding stock) had so reduced the population that it was in danger of extermination and the shore-based fishery collapsed. Another whale fishery, at Albany, is dependent upon Sperm Whales (*Physeter catodon*). The catching of Southern Fur-seals (*Arctocephalus doriferus*), formerly lucrative, is now no longer permitted. The Dugong (*Dugong dugon*) was once an important source of food for the natives of the coastline from Shark Bay to the Northern Territory. The Dingo (*Canis familiaris dingo*) has probably not been in Australia for as long as the other native mammals, and may well have entered with the Australoid people who were ancestral to our present Aborigines. In some parts of the State the Dingo is a major problem to the pastoral industry because of its attacks on livestock.

The preceding table also shows that there is a large number of introduced species as well as native mammals. These are now a part of the wild mammal fauna of Western Australia and all are placentals. Some of these species are also agricultural and pastoral pests and they have become so well entrenched in the environment that there is no doubt that any discussion of the mammalian fauna of the State must take them into account and mention should be made of some of them here. Red Deer (*Cervus elephas*) occur spasmodically in the South-West around Pinjarra, Waroona and Harvey. Camels (*Camelus dromedarius*) occur in large numbers and are distributed through the Eastern Goldfields up through the Pilbara and into the Kimberley. They have been declared vermin around Laverton, Nullagine, Port Hedland, and Halls Creek. Donkeys (*Equus asinus*) have a distribution very much like that of the camel and also occur generally throughout the Kimberley. Wild goats (*Capra hircus*) are ubiquitous in dry country but are mainly concentrated in the Murchison and the North-West. A small herd of Black-buck (*Antelope cervicapra*) occurs near Geraldton. Rabbits (*Oryctolagus cuniculus*) are widespread in Western Australia but are only of economic significance south of the Murchison. They are by no means the problem that they used to be, due largely to programmes of intensive rabbit extermination. Foxes (*Vulpes vulpes*), declared vermin, are also widespread but do not commonly occur north of the De Grey River, having only been reported spasmodically from the Kimberley Division. The domestic cat run wild (*Felis catus*) occurs commonly in the bush and is an efficient predator on native fauna. It became feral in the early days of settlement and soon spread throughout the Colony. The naturalist Keartland while a member of the Calvert Scientific Exploring Expedition in 1896, recorded that 'in the desert of North-West Australia' he saw a tabby cat at least 400 miles from the nearest house. Earlier still the ornithologist Tom Carter writing in 1887 from the Carnarvon district spoke of 'the domestic cat, which is found quite wild and of a large size all through the colony'.

Examination of the composition of the older mammal fauna of Western Australia, i.e. monotremes, marsupials, bats and native rodents, as set out in the following table, reveals that only one-eighth of all species recorded from the State today appear to occur only in Western Australia. The South-West contains by far the greatest number of endemic species.

## ENDEMISM OF NATIVE MAMMALS TO WESTERN AUSTRALIA

(excluding marine mammals)

Group	All endemic and non- endemic species	Number of endemic species—			
		Total endemics	Endemics north of Fitzroy River	Endemics of South-West Land Division	Endemics of remainder of State
Monotremes ....	1	....	....	....	....
Native cats ....	23	5	1	2	2
Marsupial moles ....	1	....	....	....	....
Bandicoots....	7	....	....	....	....
Possums ....	8	2	1	1	....
Wombats ....	1	....	....	....	....
Kangaroos and Wallabies ....	20	4	....	3	1
Rats ....	24	3	....	2	1
Bats ....	23	....	....	....	....
Dingo ....	1	....	....	....	....
Totals ....	109	14	2	8	4

**Birds**

The bird fauna of Western Australia consists of a selection of the species occurring in eastern Australia, with only a very minor development of endemic forms. All of these latter, except one (the Western Australian King Parrot, *Purpureicephalus spurius*), have a close and obvious affinity to other Australian forms. The quantitative relationship of the Western Australian bird fauna to that of Australia as a whole is indicated in the following table, which has been prepared on an ecological basis.

	Number of breeding species		Number of non-breeding visiting migratory species	
	Western Australia	Australia	Western Australia	Australia
Land birds ....	307	499	6	8
Inland water birds ....	51	52	33	42
Sea birds ....	25	38	33	55
Total ....	383	589	72	105

Representatives of most of the families and genera of Australian birds occur in this State. Notable absentees include the Cassowary (*Casuarus casuarus*), Brush Turkey (*Alectura lathami*), several of the fruit-pigeons, the Crimson Rosella (*Platycercus elegans*), Lyre-bird (*Menura novae-hollandiae*), several honeyeaters including the Regent (*Zanthomiza phrygia*), Apostle-bird (*Struthidea cinerea*), Cat-birds (*Ailuroedus*), Satin Bower-bird (*Ptilonorhynchus violaceus*) and Rifle-birds (*Ptiloris*).

Space is insufficient to detail all the forms occurring in Western Australia. Mention may be made only of some distinctive species and groups which are common and widely distributed.

The Emu (*Dromaius novae-hollandiae*) is still numerous all over the State and is occasionally encountered in the Darling Range near Perth. Australia's only breeding species of penguin, the Fairy Penguin (*Eudyptula minor*) nests on islands off the southern and south-western coasts as far north as Carnac near Fremantle. The Mallee-fowl or Gnow (*Leipoa ocellata*) is still plentiful and, after a period of decline during which its disappearance was feared, it is now increasing in abundance. All of the widespread

species of Australian quails occur but owing probably to the scarcity of natural grasses in the south are not individually very numerous. Among the pigeons two species have shown notable recoveries in population strength. After a long period of scarcity the Common Bronzewing (*Phaps chalcoptera*) began a cycle of increase about 1936 and is still very abundant. The rare Flock Pigeon (*Histriophaps histrionica*) of the more arid country of the North-West and the far North has declined all over Australia and had not been recorded in this State since 1927 until 1958 when considerable flocks were observed in the Hamersley Range and the Fortescue River country. It has also reappeared in parts of the Kimberley Division.

A very distinctive member of the rail family is the Black-tailed Native Hen or Gallinule (*Tribonyx ventralis*). It is a creature of the drier country but is subject to violent fluctuations in numbers, when it is liable to invade the South-West in great strength. A famous occasion was in May 1833 when it overran the settlers' fields and gardens around Perth and did considerable damage to the crops. Similar eruptions took place in 1853, 1886, 1897 and 1919. Later invasions, such as those in 1952 and 1964, have been on a much more modest scale. Of the three Australian grebes the most plentiful is the Hoary-headed Grebe (*Podiceps poliocephalus*) which assembles in the winter in big flocks on the southern estuaries, including that of the Swan River.

In the petrel group there are five breeding species in local waters. The most numerous is one of the mutton-birds, the Wedge-tailed Shearwater (*Puffinus pacificus*) which nests on most islands between Carnac in the south and Sable Island, in the Dampier Archipelago, in the north. A second mutton-bird, the Fleshy-footed Shearwater (*P. carneipes*) nests between Cape Leeuwin and the Archipelago of the Recherche; it is a migratory species and in the winter months migrates to the north-western sector of the Indian Ocean. A similar trans-equatorial migrant is the White-faced Storm-petrel (*Pelagodroma marina*), a diminutive form rarely observed at sea. It nests often in vast aggregations on islands off the south coast and as far north as the Abrolhos. All of these species nest in the spring and summer months. The remaining two breed in the winter. The Great-winged Petrel (*Pterodroma macroptera*) shares the nesting islands off the south coast with the Fleshy-footed Shearwater in a sort of 'Box and Cox' relationship. The black and white Little Shearwater (*Puffinus assimilis*) has a wider nesting range, from the Recherche to as far north as the Abrolhos; in former times it nested at Parrakeet Island off Rottnest Island. In the winter months some twenty-two species of southern-breeding petrels visit local seas. They vary in size from the little Wilson Storm-petrel (*Oceanites oceanicus*), barely larger than a swallow, to the great Wandering Albatross (*Diomedea exulans*). The Wilson Storm-petrel 'winters' all along the Western Australian coast to the tropics and is a familiar sight around fishing boats in Shark Bay. The most common of the albatrosses is the Yellow-nosed Albatross (*Diomedea chlororhynchos*) and may be seen as far north as Point Cloates. The most familiar of these visitors is the dusky Giant Petrel (*Macronectes giganteus*). Ringing experiments have demonstrated that the birds seen here are first-year individuals making circumpolar flights round the Southern Hemisphere; marked birds found in the South-West had been ringed a few months previously in their nests at Heard Island, Macquarie Island, and islands in the South Orkneys in the South Atlantic.

All of the five species of Australian cormorants or shags occur locally. Despite complaints of their depredations on commercially important fish, investigations have cleared the birds of blame, though one species, the Black Cormorant (*Phalacrocorax carbo*), specifically identical with the Cormorant of Europe, does occasionally include edible fish in its diet. One marine species, the Pied Cormorant (*P. varius*), which enters the Swan River estuary and Peel Inlet, is mainly responsible for the guano deposits on the coastal islands. Deposits at Shark Bay were commercially exploited in the last century and at one stage, in 1850, a detachment of troops was stationed at The Quoin Bluff, Dirk Hartogs Island, to ensure the collection of royalties. Pelicans in Western Australia, unlike those in eastern Australia, breed only on coastal islands and not on inland waters. Until recently the nearest breeding place to Perth, and presumably the origin of most of the Swan River Pelicans, was Pelican Island, Shark Bay. However, since 1962 a breeding colony has become established at Peel Inlet, Mandurah.

Fourteen species of terns are recorded for the southern parts of the State and three more for the Kimberley Division. Three of the seventeen are migrants from the Northern Hemisphere and ringed individuals of the European Common Tern (*Sterna hirundo*) and the Arctic Tern (*S. macrura*), marked in northern Europe, have been recovered near Fremantle. These birds must have reached our coast via the Cape of Good Hope. The Silver Gull (*Larus novae-hollandiae*) is noteworthy for having two breeding seasons in the southern part of the State. On the islands at Safety Bay, for example, there is an egg-laying peak in the autumn and another in the spring.

The numerous Order of wading or shore-birds (sandpipers, dotterels, and plovers) includes a few locally-breeding species but the majority are migrants from the Northern Hemisphere, where they breed in the tundra zone of northern Asia. Though they frequent ocean beaches and estuaries, as well as swamps and lakes, they are listed in the category of 'inland water birds' in the table on page 70. Some twenty-five species of these birds, commonly called 'snipe' (though the true Snipe of eastern Australia, *Gallinago hardwickii*, does not occur in this State) migrate to Western Australia. In addition there are sixteen species of this Order which breed in Australia. One of them, the Red-capped Dotterel (*Charadrius alexandrinus*), is virtually identical with the rare Kentish Plover of England. Here it is very common and nests at Pelican Point on the Swan River. Another local breeder is the remarkable Banded Stilt or Rottneet Snipe (*Cladorhynchus leucocephalus*) which is an attractive inhabitant of the salt lakes of Rottneet Island. However, it nests only on the inland salt lakes. The nesting habits remained long unknown until colonies were discovered at Lake Grace and Lake King in 1930.

The Australian Bustard ('Wild Turkey', *Eupodotis australis*) is a magnificent bird which has been largely exterminated by shooters over much of south-eastern Australia and in the developed South-West of this State. It is not uncommon in sparsely-settled areas and individuals occasionally appear on the open coastal country quite near Perth. It has recently been demonstrated by ringing that the Straw-necked Ibis ranges between south-western Australia and northern and eastern Australia. Fledglings marked in the nests at Muchea have later been taken in the North-West, the Kimberley Division, Arnhem Land and near Orange (New South Wales).

The Brolga (*Grus rubicunda*) is a northern bird normally found as far south as Onslow, but some individuals may wander into the outer parts of the South-West as occurred in 1952. In the heron family a new bird has been added to the State list—the Cattle Egret (*Bubulcus ibis*), which appears to have colonised northern Australia from Indonesia and has now spread over much of eastern and Western Australia.

There are eighteen species of swans and ducks occurring in the State, one of the most remarkable, perhaps, being the Cape Barren Goose, which is now restricted to the islands of the Recherche Archipelago. Recent leg-ringing experiments have shown that the common and widespread Grey Teal (*Anas gibberifrons*) wanders indiscriminately all over Australia, its movements being influenced by availability of surface waters.

Though the Black Swan (*Cygnus atratus*) occurs all over Australia, and in fact is more plentiful in some of the other States, historical reasons give it a peculiar association with Western Australia. The bird was first recorded by Europeans in this State, by Antonie Caen, skipper of the Dutch ship 'Banda' in July 1636 off the north-west coast. The first specimens were captured on the Swan River by Willem de Vlaming in January 1697 and taken alive to Batavia, whence they astonished the scientific world. Vlaming named the river after them, and the first colonisation in 1829 was known as the Swan River Settlement. The bird became the emblem of the Colony and State, with the motto, *Cygnis insignis*. The birds do not, and probably never did, occur in the broadwaters of the Swan River estuary, but in the shallows at Lucky Bay and above Heirisson Island. During the 1890s the authorities imported birds from elsewhere in the State, and even from Victoria, and set them free, pinioned, in Perth Water, where they were an attraction in Mounts Bay when the old men's home was located near there.

The State is also well provided with hawks and eagles, twenty-four species being found within its limits. Most are harmless economically and the few that do take chickens and lambs are not serious depredators, though there is controversy on the role of the

Wedge-tailed Eagle (*Aquila audax*) which is, however, classified by the Agriculture Protection Board as vermin in certain districts in the central and north-west portions of the State.

There are not as many species of the parrot group in Western Australia as there are in eastern Australia but one species, the Western Australian King Parrot or Red-capped Parrot (*Purpureicephalus spurius*), is restricted to the South-West and has no near relatives elsewhere. The Twentyeight Parrot is a form of the Port Lincoln Parrot (*Barnardius zonarius*) and is common almost everywhere, being regularly present in King's Park, a natural reserve adjacent to the City of Perth.

The Kookaburra (*Dacelo gigas*), so common in the forests of the South-West, is not a Western Australian native but was introduced from eastern Australia by the Acclimatisation Board during January 1897. A similar species, however, the Blue-winged Kookaburra (*D. leachii*) occurs in the north, as far south as the Wooramel River. The Rainbow-bird (*Merops ornatus*) in the south is a strict migrant, arriving regularly in the first week in October. Local birds migrate to the north of the State, the wintering area being from the Gascoyne River northward, but some individuals cross the Timor Sea to the Indonesian islands. There are eleven cuckoo species in our area, the commonest being the Pallid Cuckoo (*Cuculus pallidus*) whose plaintive insistent note is heard soon after the winter rains set in.

In the great group of passerines, or song-birds (Order Passeriformes), the most celebrated is the Noisy Scrub-bird (*Atrichornis clamosus*), a primitive almost-flightless bird which until recently was believed to be the only Australian bird which had become extinct since white settlement. The last specimen was collected by the ornithologist A. J. Campbell at Torbay in 1889, but late in 1961 a surviving population was discovered at Two Peoples Bay east of Albany. Space is insufficient to deal in any detail with other members of this large Order. Throughout the State there are 172 species, of which 95 occur in the southern, settled parts and at least 33 are found in King's Park. A distinctive robin, the White-breasted Robin (*Eopsaltria georgiana*), occurs in the South-West. It is a relative of the yellow robins and is found in the dense coastal and forest thickets from Geraldton southward and east to Albany and the Porongurups. The Western Warbler (*Gerygone fusca*) is a sweet-voiced songster which may be heard in the street trees of Perth, the only Australian capital city in which it lives; in the other States the bird is an inland species. Another distinction of the Perth metropolitan area is that four species of blue-wren, a greater number of species than in the environs of any other capital city, have been noted there. One species, the Red-winged Wren (*Malurus elegans*), which used to live near the city, disappeared when Herdsman Lake was drained. The remaining species are the Splendid Wren (*Malurus splendens*), occasionally still seen in the University grounds; the Blue-and-white Wren (*Malurus leuconotus*) in the coastal dune scrubs, and the Causeway and Pelican Point samphire flats; and the Variegated Wren (*Malurus lamberti*) in the dune thickets. Honeyeaters are numerous, the largest, the Red Wattle-bird (*Anthochaera carunculata*), being a familiar bird in metropolitan streets and gardens. Most of the grassfinches are restricted to the Kimberley Division, where ten species are found. However, one of them, the widespread Zebra Finch (*Taeniopygia castanotis*), nests as near to Perth as Northam and York. Two bower-birds occur in the State. The Great Bower-bird (*Chlamydera nuchalis*) is confined to the Kimberley Division, but the Spotted Bower-bird (*C. maculata*) is found in the North-West and ranges south to the East Murchison country and Malcolm in the Eastern Goldfields.

In contrast with all other Australian States there are very few species of exotic birds established in Western Australia. (The same is true of the Northern Territory.) In the towns of the South-West two turtle doves are plentiful, the Indian (*Streptopelia chinensis*) and the Senegal (*S. senegalensis*). The Goldfinch (*Carduelis carduelis*), an escapee from aviaries, breeds freely in the Perth metropolitan area and around Albany. Recently another cage-bird escapee, the Red-browed Finch (*Aegintha temporalis*), an eastern Australian species, has established itself east of Kalamunda in the Darling Range near Perth. The

Indian or Ceylon Crow (*Corvus splendens*) repeatedly arrives at Fremantle on ships from the Orient but the vigilance of officers of the Department of Agriculture and port officials has led to the successful eradication of the unwanted immigrants. The House Sparrow (*Passer domesticus*) has been similarly kept at bay at Fremantle. This species did, however, make a temporary colonisation, from South Australia, in the vicinity of Eucla and Mundrabilla in 1917-18 but it failed to make any headway and disappeared from that sector.

### Reptiles

In Western Australia the reptiles are represented by three major zoological groups or Orders. These are the Chelonia (four marine species of turtles and six of freshwater tortoises), Crocodilia (two of crocodiles) and the Squamata (sixty-two species of snakes and 159 of lizards).

The freshwater tortoises of Western Australia, like those of the rest of the continent, belong to the ancient group of side-necked tortoises. In most other parts of the world tortoises retract their heads straight backwards bending their necks in a vertical S-shaped curve. Australian tortoises, and certain others from South America, bend their necks sideways; this is believed to be an ancient character. Although the species of Western Australian tortoises are few, they are of great interest and their distributions are far from well understood. This is especially true of the species inhabiting the Kimberley. Freshwater tortoises do not seem to fall into simple faunal zone classifications. The common long-necked tortoise of the South-West, *Chelodina oblonga*, is closely related to the long-necked tortoise of the Kimberley Division, *Chelodina rugosa*. However, neither of the short-necked tortoises of the Kimberley Division, *Emydura australis* and *Elseya dentata*, is represented in the South-West. The river systems from the Irwin, in the Northern Agricultural Division to the De Grey in the northern Pilbara, have their own tortoise (*Chelodina steindachneri*), while a highly specialised short-necked tortoise (*Pseudemydura umbrina*) is apparently confined to a few square miles of winter swamps between Upper Swan and Bullsbrook to the north of Perth. Because of its vulnerability to extinction this last species is rigidly protected.

Marine chelonians also occur in large numbers around the coasts. The Green Turtle (*Chelonia mydas*), the species which is used for soup making, comes ashore to lay its eggs on the northern beaches. Attempts are made from time to time to exploit this species commercially; two turtle-fishing boats are at present licensed to operate off the North-West coast.

There are two species of crocodiles in Western Australia. One is the harmless fish-eating Freshwater Crocodile (*Crocodylus johnstoni*) and the other the dangerous Salt-water or Estuarine Crocodile (*C. porosus*). Both species are confined to northern parts of the State and both are now protected by law. Until recently the latter formed the basis of a lucrative trade in hides.

Snakes and lizards are common and widespread throughout the State, and in numbers of obvious individuals they are probably surpassed among the vertebrates only by the birds. In the South-West, Bobtails (*Trachysaurus rugosus*) can often be seen crossing the roads at most times of the year, while the walker among coastal sand dunes on warm days cannot avoid noticing innumerable small dragon-lizards which move away from in front of him. In the southern part of the State the largest lizard which is at all common is the Goanna (*Varanus gouldi*). These are frequently between three and four feet in length. In northern areas the Perentie (*Varanus giganteus*) exceeds it in size. A few species are confined to the South-West and of these the most interesting are Mueller's Snake (*Rhinoplocephalus bicolor*), the Little Brown Snake (*Elapognathus minor*), the Black-Striped Snake (*Vermicella calonota*) and the Slender Snake Lizard (*Pletholax gracilis*) which is also one of our rarest species of lizard. An Eyrean species which never ceases to surprise the visitor is the terrible-looking Mountain Devil (*Moloch horridus*). This lizard is actually one of the most gentle and harmless of animals and lives exclusively on ants.

The snake fauna of the State is diverse and, like that of other parts of Australia, contains many venomous species, the best known being the Tiger Snake (*Notechis scutatus*), the Dugite (*Demansia affinis*), the Gwardar (*D. nuchalis*), the Death Adders (*Acanthophis antarcticus* and *A. pyrrhus*) and the Mulga Snake (*Pseudechis australis*).

The snakes and lizards are well described in Glauert's *Handbook of the Snakes of Western Australia* and *Handbook of the Lizards of Western Australia* (see bibliography at the end of this Part).

Because of the great distance of the Kimberley Division from centres of scientific research, insufficient is known of its snakes and lizards. As in the case of some of the smaller mammals, some endemic species of lizards have been described, but until much more scientific collecting and research has been done it will not be possible to evaluate such apparently-unique species. Some Kimberley species of lizard, e.g. the Frilled Lizard (*Chlamydosaurus kingi*), through being commonly illustrated in journals because of their bizarre appearance, have become familiar to the public.

### Amphibia<sup>(4)</sup>

Unlike the other continents Australia has no newts or salamanders (Urodela) or worm-like gymnophionans (Apoda). However, frogs (Anura) are abundant.

The frogs of Western Australia fall into the same grouping (Bassian, Eyrean and Torresian) which was mentioned in the section on mammals. However, they lack the diversity of genera and species shown by other groups and only ten genera with about thirty species are known from south of the Tropic of Capricorn. Of these, two genera, *Metacrinia* and *Myobatrachus*, each with one species, are restricted to the South-West. Most of the other kinds of frogs are distinct from, but related to, species found elsewhere in Australia.

Since most of Western Australia is exceedingly dry it is of interest to note that frogs are common in these arid regions. Those species of *Heleioporus* which occupy marginal-desert habitats overcome drought conditions by burrowing into the damp sub-soil. However, the arid-country species of *Neobatrachus* frequent clay soil where deep burrows are impossible and water can be lost. These species show no special capacity to endure greater water loss than *Heleioporus* species, but they do display an exceptional capacity for rapid replacement of water when water is present, as for example after thunderstorms. The water-holding frog, *Cyclorana platycephalus*, is found in inland and northern parts of the State. All 'desert' species retain an aquatic larval life, but this is much shorter than that of species in the well-watered parts of the State. The only species lacking aquatic larval development occur in the wetter South-West; these are *Myobatrachus gouldii*, *Metacrinia nichollsi* and *Crinia rosea*. *Myobatrachus gouldii* is the only species which exhibits any strong dietary preference and eats only termites (Isoptera).

### Freshwater Fishes

The truly freshwater fish fauna of the southern part of the State is, by eastern Australian standards, an impoverished one and the species, with the exception of the freshwater catfish ('cobbler'), are diminutive in size. Most of the species are representatives of eastern Australian genera, such as the Pygmy Perch (*Nannoperca vittata*), Mountain Trout (*Galaxias truttaceus*), Black-striped Minnow (*G. pusillus*), and the Native Minnow (*G. occidentalis*). Others are more distinctive, with no near relatives in eastern Australia, such as the Nightfish (*Bostockia porosa*), the King River Perchlet (*Nannatherina balstoni*) and the newly-described scaled galaxiid (*Lepidogalaxias salamandroides*). There are several gobies (*Glossogobius suppositus* and *Lizagobius olorum*) and Hardyheads (including *Atherinosoma edelensis*, *A. rockinghamensis*, *A. elongata* and *Craterocephalus cuneiceps*). A lamprey (*Geotria australis*) ascends the rivers to breed and has been recorded north to the Swan River system, but is more abundant in the streams emptying on the south coast. An eel (*Anguilla australis*) has been recorded from the South-West but it is not known whether it is native to the area or has been introduced.

---

<sup>(4)</sup> Written in collaboration with Prof. A. R. Main.

The north-western rivers have a richer fish fauna. The most widespread is the Spangled Perch (*Therapon unicolor*), a useful food fish which occurs in all rivers south to the Murchison. A large catfish (*Arius australis*) reaching 5 lb in weight, occurs in the systems south to the Fortescue. The Rainbow Fish (*Melanotaenia*), popular with aquarists occurs in the river systems of the Pilbara and the Kimberley. The remarkable Blind Gudgeon (*Milyeringa veritas*) and blind eel (*Anommatophasma candidum*) occur in wells and subterranean channels in the North West Cape area. The Kimberley Division has an even larger series of freshwater fishes. These include a catfish (*Neosilurus brevitor-salis*), various Bony Bream (*Fluvialosa*), various perch-like fishes (*Therapon*, *Acanthoperc*), Gudgeons (*Carrassio*) and two freshwater saw-fishes (*Pristis clavata* and *Pristiopsis leichhardtii*). There is also a freshwater eel (*Anquilla bicolor*) in these far northern waters.

### Marine Fishes<sup>(5)</sup>

The marine fish fauna of Western Australia is probably richer in species than that of any other Australian State. This is because the fish of the northern part of the State's very long coastline belong to the rich tropical Indo-Pacific fauna, while its southern fauna is a temperate one which includes many elements peculiar to Australian waters. The most up-to-date list of the species of Western Australian fish, published in 1948, enumerates 740 species, but since that time collecting has revealed about 120 more. Even so, this figure is still far short of the total number which, it is suspected, will eventually be found to be in the neighbourhood of 2,000.

From this it can be seen that there is much to be learnt about fish of Western Australia but it is probable that only a few of these species are confined to Western Australian waters. At present it seems that most of the fish occurring in the tropical part of the State are widely distributed, and species often range throughout the whole of the tropical Indian and Pacific Oceans, while the species which are found along the south coast usually occur also in the waters of South Australia, Victoria, Tasmania and southern New South Wales.

Between Cape Leeuwin and Shark Bay both northern and southern elements are found, the tropical element dominating as far south as the Houtman Abrolhos.

In addition to the widely-distributed tropical and southern elements, there are a number of species, between thirty and forty, which seem to be peculiar to Western Australia. It is necessary to be cautious here for two reasons. Firstly because the Indo-Pacific fish fauna is, as a whole, poorly known and some fish, at present only recorded from Western Australia, may actually have wider ranges. Secondly, our classification of fishes is still imperfect so that fishes which we regard as endemic to Western Australia may be known from some other region, but under different names. On the other hand there can be no doubt that at least a proportion of these species which we now believe to be endemic will prove to be confined to Western Australian waters.

In the following very incomplete review, a number of the more important and interesting families and species are listed.

Of the major groups, the Elasmobranchii (sharks and rays) are richly represented, with nearly eighty species, of which the most familiar are the Port Jackson Shark (*Heterodontus portusjacksoni*), the Carpet Shark or Wobbegong (*Orectolobus maculatus*) and the shark known locally as the Swan River Whaler (*Carcharhinus leucas*), which can be caught in the Swan River as far upstream as the Garratt Road Bridge. It occurs during the summer months and one non-fatal attack in the Swan River has been attributed to this species. The Port Jackson Shark, the Carpet Shark and the Swan River Whaler are regarded as harmless to man; of the dangerous species, the Tiger, the Whaler and the White Pointer are perhaps the best known. Four fatalities from shark attack have been recorded for Western Australia (in 1803, 1923, 1925 and 1967) and a few people are known to have been maimed. It may be said, however, that in Western Australia the danger of shark attack is low.

Most major families of bony fishes are represented, but only a number of the more interesting or familiar species can be mentioned here.

---

<sup>(5)</sup> Contributed by Dr G. F. Mees.

There are about ten species of true herring (Clupeidae), one of which, the Pilchard (*Sardinops neopilchardus*) will in future probably become of economic importance. The rather similar-looking *Amblygaster postera* seems to be confined to Western Australia. The State is particularly rich in sea-horses and pipe fishes, there being some twenty-five species. The most familiar of these is perhaps the leafy sea-horse (*Phyllopteryx foliatus*) which is often found on the beaches after storms. The so-called Sand Shark or Rat Fish (*Gonorhynchus greyi*), a peculiar fish and the sole representative of its family, deserves mention; it is fairly common off sandy coasts of the South-West. Though eels are represented by several families and over twenty species, only three are common in the South-West; the Snake Eel (*Ophisurus serpens*), a slender golden brown eel inhabiting sandy estuaries, which is often taken for a snake and referred to as the water snake; Woodward's Eel (*Gymnothorax woodwardi*), found on rocky shores, yellowish green with a network of grey lines; and the Conger Eel (*Conger wilsoni*), which normally is dark brown in colour.

Garfishes (Hemiramphidae) are common. Of their relatives the Long Toms (Belontiidae), only *Belone ciconia* is common in the South-West, the others being more tropical in distribution, though one of the northern species, *Belone hians*, has been found as far south as Rottnest Island.

Silversides and hardyheads (Atherinidae) are well represented and so are mullets (Mugilidae). Some representatives of these groups have been mentioned in the preceding section, which deals with freshwater fishes.

The family Serranidae, known as groper, rock cod, etc. are well represented by nearly thirty species. The best known is the North-west Groper (*Epinephelus tauvina*) which attains a length of more than seven feet. Most species have a very wide, mainly tropical, distribution, but *Epinephelus rankini* is only known from a restricted area round Onslow and must be looked upon as endemic to Western Australia. In temperate waters the preceding family is more or less replaced by the related Hypopteroideidae.

Some small families, like the Australian Salmon (Arripidae), Whiting (Sillaginidae) and Snappers (Sparidae) are of great economic importance, though there are only a few species. On the other hand the Skipjacks (Carangidae) are the largest family of the State and comprise some thirty species. Another group which are also called Snappers (Lutjanidae) is prominent in the tropical part of the State. These are often referred to as North-west Snappers and should not be confused with the southern Snapper (*Chrysophrys unicolor*) which belongs to the Sparidae.

Coral fishes (Chaetodontidae) are richly represented, mainly along reefs in the tropics, but a number of species come down to the Alborhos Islands, and some even near to Perth. Most species have a very wide distribution in the Indo-Pacific, but one, *Chaetodon assarius*, has not been found outside Western Australia.

The Mackerel family (Scombridae), which includes mackerel, Spanish mackerel, tuna, bonito and albacore, is important both in tropical and temperate waters. The related marlins and swordfishes, well known to sporting fishermen, also occur in these waters.

Flatfishes (Heterosomata) occur in a great variety of species, and the same can be said of Parrotfishes and Wrasses (Scaridae and Labridae). All these groups are as yet very insufficiently known.

The stargazers and stonelifers are sluggish bottom fishes that deserve mention because of their unusual shape. One, *Ichthyoscopus barbatus*, occurs off the south-west coast and also in South Australia, and is regularly caught by anglers. Another species, *Ichthyoscopus insperatus*, a common fish of the north-west coast from Broome to Shark Bay, seems to be confined to Western Australia. The dragonets (Callionymidae), of which nine species have been recorded, are smaller, but their pretty appearance attracts attention, and one species, *Dactylopus dactylopus*, widely distributed in the Indo-Pacific, is regularly found off sandy beaches as far south as Rockingham.

Blennies (Blenniidae), weedfish (Clinidae), and gobies (Gobiidae) are small fishes of which there are many species; blennies are most plentiful in rockpools and on reefs in the tropics, while gobies are also found on sandy bottoms.

There are some twenty species of scorpion fishes known from the State, the most familiar of which are *Scorpaena sumptuosa* in the south, and the small *Scorpaena bynoensis* in the north; the first-mentioned species is also interesting in that, though it has been known for almost a century, it has never been recorded from outside Western Australia. Of the closely-related Synancejidae, the feared stone fish, three species are known from the State, one of which, *Erosa daruma*, is apparently restricted to the North-West and is known from but two specimens. A related species occurs in Queensland and Japan.

Flatheads (Platycephalidae) are common in the temperate part of the State.

An interesting family is that of the angler fishes or toad fishes (Antennariidae). Their curious shape with the leg-like pectoral fins always excites attention. There are about a dozen species, two of which are endemic to the State. One of these is *Echinophryne glauerti* which is occasionally found washed up on City Beach.

Leatherjackets (Monacanthidae) are a large group distinguished by the rough leathery skin and a single large erectile spine on the nape. Some species, like *Chaetoderma penicilligera*, are common and of attractive appearance.

Of the blowfish family, the common Blowie (*Tetraodon (Spheroides) pleurogramma*) needs special mention; it is extremely plentiful off the coast at Fremantle and in the Swan River estuary. It is poisonous to eat and is greatly disliked by anglers who find that it greedily takes their bait. Fishes of this family contain a poisonous substance called Tetraodontoxin and the celebrated navigator Captain James Cook was very ill after eating a blowfish in the course of a voyage in the Pacific in 1774. Boxfishes (Ostraciontidae) and porcupine fishes (Diodontidae) are related groups, each represented by a number of species.

Further information about the commercial fishes in Western Australian waters is given in the Fisheries section of Chapter VIII, Part 1—*Primary Production* where the principal species of edible fish are listed together with the quantities of each species caught. The section also contains additional information relating to whaling (see *Mammals* earlier in this Part).

#### THE INVERTEBRATE FAUNA<sup>(6)</sup>

The invertebrate fauna of Western Australia is large and varied, as one would expect in a third of a continent which extends from temperate to tropical zones and includes both coastal and desert areas. Rather than spread our descriptions too thinly over this enormous field we have restricted ourselves to a brief summary of the position in relation to a few selected groups in which work is being actively carried out.

Several invertebrate species are commercially exploited here, the most important being the marine crayfish or rock lobster (*Panulirus cygnus*) which supports an extensive export fishery. Others commercially important include several species of octopus and squid, the Blue Swimming Crab ('Blue Manna', *Portunus pelagicus*), several species of prawns, two species of scallop (*Amusium balloti* and *Pecten modestus*), and the rock oyster (*Crassostrea tuberculata*). Pearl-shell was fairly extensively fished along the north-west coast but this fishery has now declined, the small quantity of pearl-shell now taken being used in the developing pearl-culture industry.

A summary of the terrestrial and freshwater invertebrate fauna and their ecology is given in Main's *Guide for Naturalists* (1968).

#### Echinodermata

The echinoderms of Western Australia have been shown by Clark (1946) to be derived from the tropical fauna to the north. About half of the species of northern Australia are widely distributed in the Indo-West Pacific region while the remainder are endemic to Australia. As one passes southward the proportion of endemic species rises until on the south-western coast nearly nine-tenths of the echinoderms are endemic to the region.

<sup>(6)</sup> Written with assistance from Drs R. W. George, E. P. Hodgkin, Barbara Y. Main and B. R. Wilson, Mr G. W. Kendrick, and Mrs L. Marsh.

All five groups of echinoderms, feather stars (Crinoidea), sea stars (Asteroidea), brittle stars (Ophiuroidea), sea urchins (Echinoidea), and sea cucumbers (Holothuroidea) are well represented. Eighty-five species of sea stars and fifty-five species of sea urchins are recorded from Western Australia including the continental shelf. The other groups have smaller numbers of species.

On the rocky and sandy shores of the South-West about twenty species of sea stars are common in shallow water. One of the most abundant is *Coscinasterias calamaria* which is widely distributed in the Southern Hemisphere. Sea urchins are represented by about twelve common species; on rocky shores the most abundant of these is *Heliocidaris erythrogramma* which has a southern Australian distribution.

There is an abundant echinoderm fauna in Cockburn Sound, between Garden Island and the mainland south of Fremantle, where a variety of habitats supports twenty-five species of sea stars, ten of sea urchins and many brittle stars, feather stars and sea cucumbers. Mud eating species such as the sea star *Stellaster inspinosus* and heart urchin *Echinocardium cordatum* are common in the deep basin of the Sound while several tropical species including the sea stars *Euretaster insignis* and *Echinaster varicolor* and the sea cucumber *Pentacta quadrangularis* are found in the reef and coral areas of the eastern shelf of the Sound. On the south coast, King George Sound has long been known as a rich collecting ground for echinoderms, but the fauna of other bays and inlets is much less well known.

Little is known of the echinoderm fauna of the northern coasts, and almost all that we do know comes from the publications of H. L. Clark (see bibliography at the end of this Part) who collected extensively in the Broome area and made smaller collections in other places. Near Broome, a wide variety of echinoderms was collected in his dredges and along the shore. In more recent years new collections have been made in the region but the specimens have not yet been studied.

The Crown of Thorns Starfish (*Acanthaster planci*) which feeds on living corals and has been responsible for extensive damage to coral reefs in other regions is known to occur off the north-west coast, but there are no records of plague populations. Specimens have been reported from Admiralty Gulf, Barrow Island, and the North West Cape area. In 1971 a fairly large population was discovered in the Dampier Archipelago; this is now being monitored and studied by a team from The Western Australian Museum, supported by a grant from the Commonwealth and Queensland Advisory Committee on Research into the Crown of Thorns Starfish.

## Mollusca

The molluscan fauna of the Western Australian coastline has not been recently catalogued, but from the area within thirty-five miles of Fremantle 270 species of bivalves (Pelecypoda), and univalves (Gastropoda) are recorded. The smaller groups, chitons (Amphineura), octopus and cuttlefish (Cephalopoda) and tusk shells (Scaphopoda) are also represented.

Molluscs dominate the intertidal rocks of the west coast, especially chitons, periwinkles, and limpets; the limpets range from the very large *Patellanax laticostata* to the small *Notoacmea onychitis*. On the north-western coast, rock oysters (*Crassostrea tuberculata*) and barnacles take the place of limpets intertidally. The oysters are fished commercially for food on a small scale in places where extensive beds are uncovered at low tide.

Bivalves occur mainly on sandy and muddy bottoms such as those of Cockburn Sound and King George Sound, and along the north-western coast. They are less plentiful on the unstable sandy shores of the open western coast. The pearl-shell fishery of north-west Australia is based on several species, mainly the Black-lipped Pearl-shell (*Pinctada margaritifera*) and the Silver-lip (*P. maxima*). The Shark Bay Pearl-shell (*P. carchariarium*) is abundant in Shark Bay and has been fished there commercially. Commercial beds of the scallop *Amusium balloti* and the mussel *Mytilus edulis planulatus* also occur in Western Australian waters but only sporadic, small-scale attempts to exploit them have been made.

Many species of cowrie shells occur on the rocky shores of the north-west coast while a few species such as *Zoila friendii* and *Austrocyprea reevei* are confined to the south-western corner of the State. The north-west coast also has many endemic species of volute shells such as *Volutoconus hargraevsi*, *Amoria macandrewi* and *Cymbiola nivosa*.

Two kinds of gastropods without visible shells are conspicuous members of the marine fauna off Fremantle. One is the large sea-hare (*Aplysia gigantea*) with a small internal shell; it may be cast up on the beaches in large numbers after winter storms. The other is a nudibranch, with no shell at all, the colourful *Glossodoris westraliensis*, well known to visitors to Rottnest Island.

The non-marine molluscan fauna (terrestrial and aquatic) is quite diverse. Conspicuous in the South-West are species of the pulmonate genus *Bothriembryon*, which are adapted to a wide variety of habitats from cool temperate rain forest to arid steppe. In the Kimberley, North-West, and arid regions generally the snail family Camaenidae predominates. Throughout the State there are also many other smaller and inconspicuous terrestrial snails and a small number of aquatic snails and bivalves.

### Corals

In Western Australia the wide continental shelf off the north of the State has coral platform reefs, islands and several very large true atolls, the fauna of which is still largely unknown.

Coral growth is restricted on much of the north and north-west coast by turbidity due to the outflow of rivers, muddy shoreline and the large tidal range.

Fringing and barrier reefs with rich coral growth occur in the relatively clear water of offshore islands such as the outer islands of the Dampier Archipelago where twenty-three genera of reef building corals are so far known.

From North West Cape a barrier reef extends southwards for nearly 100 miles. It lies between half a mile and three miles off the coast with deep water off its outer edge and a shallow lagoon inshore. Limited collecting has so far revealed thirteen genera of reef-building corals, probably only a fraction of the number actually present. There is a rich and luxuriant growth of corals along the outer edge and dense thickets of staghorn corals (*Acropora* sp.) in the lagoon.

The most southerly true coral reefs in the State are found at the Houtman Abrolhos which lie near the edge of the continental shelf off Geraldton in latitude 28-29°S. *Acropora*, one of the most important reef builders, flourishes at the Abrolhos, where the minimum sea temperature seldom falls below 19°C, but does not occur further south except in Pleistocene fossil beds at Rottnest Island.

A number of reef corals extend their range into the south-west of the State, sometimes forming massive colonies. At Rottnest Island *Pocillopora damicornis* makes attractive pink clumps in reef pools and large colonies form a reef-like structure at Parker Point. In the Fremantle region, including Rottnest Island and Cockburn Sound, thirteen genera of reef corals are found. They are particularly well developed in parts of Cockburn Sound despite minimum water temperatures sometimes falling below 14°C.

The coral fauna is attenuated southwards with six genera in Geographe Bay and two species extending along the south coast east of Albany. One of these, *Plesiastrea urvillei* occurs right along the south coast of Australia but does not range north of Geraldton on the west coast.

### Crustacea

The most important commercial species of crustacean in Western Australian marine waters is the Western Rock Lobster or 'Cray', *Panulirus cygnus*. It occurs from North West Cape in the north to Hamelin Bay in the south. In the tropics five additional species of *Panulirus* occur; these are collectively referred to as 'Green Crays' (*Panulirus versicolor*, *P. ornatus*, *P. homarus*, *P. penicillatus* and *P. polyphagus*). On the southern coast occurs *Jasus novaehollandiae*, which is the commercial species of rock lobster (crayfish) in south-eastern Australia, but it is not of economic importance in this State.

Two species of Shovel-nosed Lobsters are sometimes taken in prawn trawls. *Thenus orientalis*, the Moreton Bay Bug, occurs in Exmouth Gulf and further north. *Ibacus peronii*, the Balmain Bug, lives in sandy silt along our south coast. Both species are good eating. Offshore beyond the 180-metre depth limit of the Western Rock Lobster, lives a large spiny crab *Hypothalassia armata* which may develop into a commercial proposition.

The Swan River Prawn or School Prawn (*Metapenaeus dalli*) is taken by amateur and professional fishermen in the west coast estuaries by small hand-hauled nets. In the northern gulfs and bays larger prawns of the genus *Peneus* and *Metapenaeus* are sought by large commercial prawn trawls for export. The present main centres are at Shark Bay, Exmouth Gulf and Nickol Bay and exploration of waters around the Kimberley Region is continuing. The main species are the Western King Prawn (*P. latisulcatus*), the Brown Tiger Prawn (*P. esculentus*) and the Banana Prawn (*P. merguensis*).

The Blue Swimming Crab (*Portunus pelagicus*), plentiful in the summer in the estuaries of the Swan River and at Mandurah, is one of the common commercial crabs of Australia.

Two common species of crab are the Rock Crab (*Leptograpsus variegatus*) and the Ghost Crab (*Ocypode convexa*). The Rock Crab scrambles among rocks and jetty piles of the west and south coasts, whereas the Ghost Crab digs spiral burrows at the edge of the beach and is endemic to the west coast.

Of the many other species of non-commercial crustaceans some groups have been recently monographed by scientific workers. These are the swimming crabs, mantis shrimps and pebble crabs.

Crustacea are also common in inland waters (see *Fauna of Inland Waters* earlier in this Part).

### Spiders

Like most other invertebrate groups, the spiders are represented by a large number of genera and species and it is not possible at this stage to give an accurate picture of the relationships of the Western Australian fauna to the rest of Australia. Early work on the Western Australian spiders was restricted to the description and naming of species. Research now is centred on investigations of the biology of various species and the special adaptations of endemic forms to the particular conditions of the Western Australian environment. The most interesting of the spiders, when viewed from this aspect, are the burrowing groups, including primarily the Mygalomorphae ('trapdoor' spiders) and the Lycosidae (Wolf spiders). Some of these forms show special adaptations to semi-arid environments, to reduced food supply, and to flash-flooding, such adaptations being paralleled in many taxonomically unrelated genera. It is also of interest that some families, which in other parts of the world and in the wet forests of Australia are primarily web weavers and litter dwellers, are burrowers in the arid parts of Western Australia (and also in other dry parts of Australia). Such forms are essentially nocturnal and escape the unfavourable conditions of the day by remaining in their burrows and some species seal their burrows during the summer period.

### Insects

The more important insect species occurring in Western Australia (particularly those of economic significance) are dealt with in Part 5 of this Chapter.

## CONSERVATION OF THE FAUNA

In recent years the need to conserve the Western Australian fauna has received considerable publicity—this need has certainly never been greater than it is at present. In this State where new land has been brought into production for agriculture and the pastoral industry at a rate of approximately 1 million acres a year, and where the ever-increasing tempo of industrialisation and mining activity is obvious to all through its effect in increased population, the position of the native fauna is serious. This is because human

introductions such as sheep and cattle, as well as the more direct effect of the plough and the scrub roller, are radically changing the environment, but also because an increase in human population has meant a higher level of utilisation of wild stocks such as ducks (which form a basis for sport), kangaroos (which form a basis for a lucrative trade in pet meat and hides), and rock lobsters (which support the most valuable single Australian fishery).

From the early days of settlement in Western Australia, legal provisions were in existence under which land could be reserved but, in early years it was not realised that the preservation of habitat is basic to conservation and that protection of individuals against killing is of insignificant value except in specialised cases (see below). In the early days, protection was afforded to some game animals, such as kangaroos, to prevent them from being shot out, but it was not until land development became widespread in the South-West that the first real attempt was made to set aside a large permanent native fauna and flora reserve. This was in 1894 when 160,000 acres were gazetted between Pinjarra, North Dandalup and the Bannister. Unfortunately, this reserve later became alienated.

From this early attempt at habitat conservation has grown a very conscious need for extensive reserves carefully sited and selected in order to provide security for a representative sample of all the major habitats throughout the State. In 1959, a committee of the Australian Academy of Science produced such a plan for Western Australia and this plan has provided in subsequent years the basis for a policy of land acquisition for this purpose by the two major bodies who control land for conservation, *i.e.* the National Parks Board and The Western Australian Wild Life Authority.

Outside the reserves, fauna gains its protection through the Fauna Conservation Act. This Act replaced an earlier Game Act of 1912-1913 which had the rather different primary purpose of providing some measure of protection for those species of native fauna shot or hunted for sport. Under the Fauna Conservation Act, all native vertebrate terrestrial fauna, except those species declared vermin or declared otherwise unprotected, are protected against being taken, hunted, or confined. Owing to the very complex relationship between many species and their environment, such protective legislation has only a very limited long-term conservative effect in areas of closer settlement or intensive agriculture. On the other hand, in pastoral and forest areas, and in unalienated crown land not in fauna reserves, the legislation is much more valuable. The most important achievement of such protective legislation, however, is that it makes people conscious of the need to protect our native fauna and it is very likely that this educational function is its main justification except:

- (i) where animals occur on small islands or restricted places on the mainland in such numbers or in massed concentrations that they are vulnerable to destruction by man. Local examples are the Noisy Scrub-bird at Two Peoples Bay near Albany, sea birds in nesting concentrations on small islands, and island populations of mammals such as the Quokka on Rottnest or the various wallabies on Bernier and Dorre Islands in Shark Bay.
- (ii) where they are killed in the mass for commercial purposes, *e.g.* Humpback Whales, Fur Seals, Kangaroos;
- (iii) where they are killed for sport, *e.g.* the Bustard (Plains Turkey), ducks;
- (iv) where they are taken in very large numbers for zoos, circuses, or aviculture, *e.g.* finches and parrots.

In addition to its protective role, the Fauna Conservation Act establishes The Western Australian Wild Life Authority which is responsible for:

- (i) the initiation of conservation-oriented research in relation to the fauna;
- (ii) the acquisition, control, planning and management of an adequate system of sanctuaries (*i.e.* land reserved partly or entirely for the purpose of fauna conservation) including the preparation and implementation of working plans for each area; and
- (iii) advising the Minister for Fisheries and Fauna in relation to fauna conservation generally.

In Western Australia today the only terrestrial native fauna subject to any marked degree of human predation are ducks, eagles, emus, kangaroos of three species (the Grey, the Red, and the Euro) and the dingo. Excepting for certain vermin species on which a bonus is payable, figures for the total annual number killed are not available and until they are, and details of population size and rate of stock recruitment are known, it will not be possible to say whether these species are in serious danger. At present, only the crudest methods (*i.e.* of observing abundance and then subjectively comparing this with previous experience) can be used to say whether it is necessary to apply protection to prevent a serious decline in numbers.

By contrast, the position of the marine fauna is very different. There, intensive work has been done on whale, fish and invertebrate stocks in past years. There has been some cause for alarm in connection with an apparently depleting rock lobster stock, but conservative measures have been developed, and there are very good grounds for belief that these have been successful. The great reduction of the population of Humpback Whales due to over-predation is a matter of considerable shame—it illustrates well the dilemma of an industry which is faced with the alternative of a low level of fishing over an indefinite period, or a highly lucrative but short period of exploitation as though the stock were not capable of regeneration (a procedure akin to a mining operation). In the case of the whaling industry in Western Australia the position was complicated by the fact that the stock was hunted both by the shore-based Western Australian fishery and by the international pelagic fleets operating in the Antarctic.

At present, our greatest need is information upon which to base proper conservative measures. Protective legislation, no matter how effective it is in protecting individuals, must not be regarded as effective in conservation unless measures to protect the environment are also taken. As a result, the authors believe that the stages of work most urgent at present to conserve the Western Australian fauna are as follows.

- (i) to complete the reservation of lands designated in the report of the Western Australian Sub-committee of the Australian Academy of Science.
- (ii) recognising that these areas are designated upon the best available information as to habitat type, but not upon actual surveys of the fauna, the authors believe that the areas must now be given thorough biological surveys to ensure that populations of all Western Australian species of animals and plants are contained within them; and also to estimate, as far as possible, the sizes of the populations which they contain.
- (iii) to get under way an increased amount of long-term work on the biology of species which are suspected to be vulnerable. Through this work their particular requirements will be discovered and an endeavour can then be made to ensure that the reserves contain these requirements.
- (iv) to insist on proper monitoring for any annual crop taken from vermin or other species subject to human predation so that these populations can be maintained at the level consistent with the State's particular requirements, and yet to avoid their extermination.

In Western Australia, land development has not yet gone too far for the State to preserve a representative section of its fauna and flora for all time. The keys to this are habitat conservation, reserve management, and education in conservation thinking. Through these means, it will also be able to ensure that as much wild life as possible remains in altered environments as well. Indeed, if roadside verges, small township reserves and timber lots on farms are preserved, a surprisingly large number of native creatures will survive. The importance of these minor habitats, often regarded condescendingly by professional biologists who focus their attention on big reservations, cannot be sufficiently stressed. It is in these areas that the ordinary people and tourists gain an acquaintance with the native fauna and flora. Here man and animals will contrive to co-exist in intimate association with each other and so help to reinforce a popular sentiment for conservation.

## FURTHER SOURCES OF INFORMATION ON THE WESTERN AUSTRALIAN FAUNA

### Distribution

- C.S.I.R.O. *The Australian Environment*. 2nd ed. Melbourne, 1950.
- DAKIN, W. J. *Australian Seashores*. Sydney, 1952.
- KEAST, A., CROCKER, R. L. and CHRISTIAN, C. S. (ed.). 'Biogeography and Ecology in Australia'. BODENHEIMER, F. S. and WEISBACH, W. W. (ed.). *Monographiae Biologicae*, vol. 8, The Hague, 1959.
- MICHAELSEN, W. and HARTMEYER, R. *Die Fauna Südwest-Australiens*. Jena, 1910-1911.
- RIDE, W. D. L. 'On the past, present, and future of Australian Mammals'. *Aust. J. Sci.*, vol. 31, 1968, pp. 1-11.
- SERVENTY, D. L. and WHITTELL, H. M. *Birds of Western Australia*. 4th ed. Perth, 1967.
- SPENCER, BALDWIN (ed.). *Report on the Work of the Horn Expedition to Central Australia*. Part I, Summary. Melbourne, 1896.

### Mammals

- CHITTLEBOROUGH, R. G. 'Dynamics of two populations of the Humpback Whale (*Megaptera novaeangliae*)' (Borowski). *Aust. J. Mar. Freshw. Res.*, vol. 16, 1965, pp. 33-128.
- GLAUERT, L. 'The Development of our Knowledge of the Marsupials of Western Australia'. *J. Roy. Soc. W. Aust.*, vol. 34, 1950, pp. 115-34.
- RIDE, W. D. L. *A Guide to the Native Mammals of Australia*. Oxford University Press, Melbourne, 1969.
- RIDE, W. D. L. 'On the past, present, and future of Australian Mammals'. *Aust. J. Sci.*, vol. 31, 1968, pp. 1-11.
- TROUGHTON, E. *Furred Animals of Australia*. 5th ed. Sydney, 1954.
- WOOD JONES, F. *The Mammals of South Australia*. (Handbook of Flora and Fauna of South Australia), 1923.

### Birds

- MAYR, E. and SERVENTY, D. L. 'The Number of Australian Bird Species'. *Emu*, vol. 44, 1944, pp. 33-40.
- SERVENTY, D. L. and WHITTELL, H. M. *Birds of Western Australia*. 4th ed. Perth, 1967.
- SERVENTY, D. L. and WHITTELL, H. M. 'A Systematic List of the Birds of Western Australia'. *Special Publ. W. Aust. Mus.*, No. 1. Perth, 1948.

### Reptiles

- GLAUERT, L. *A Handbook of the Lizards of Western Australia*. (Published by the Western Australian Naturalists' Club). Perth, 1961.
- GLAUERT, L. *A Handbook of the Snakes of Western Australia*. (Published by the Western Australian Naturalists' Club). 3rd ed. Perth, 1967.

### Amphibians

- MAIN, A. R. *Frogs of Southern Western Australia*. Handbook No. 8 of the Western Australian Naturalists' Club. Perth, 1965.
- MAIN, A. R. *Key to the Frogs of South-Western Australia*. Handbook No. 3 of the Western Australian Naturalists' Club. Perth, 1954.
- MAIN, A. R., LEE, A. K. and LITTLEJOHN, M. J. 'Evolution in Three Genera of Australian Frogs'. *Evolution*, vol. 12, 1958, pp. 224-33.

**Fishes**

- MEES, G. F. 'Additions to the Fish Fauna of Western Australia'. Fisheries Department, Western Australia. *Fisheries Bull. W. Aust.*, No. 9, pt 1 (1959), pt 2 (1960), pt 3 (1962).
- SCOTT, T. D. *The Marine and Freshwater Fishes of South Australia*. Adelaide, 1962.
- WHITLEY, G. P. 'A List of the Fishes of Western Australia'. Fisheries Department, Western Australia. *Fisheries Bull. W. Aust.*, No. 2, 1948.

**Echinoderms**

- CLARK, H. L. 'Echinoderms from Australia'. *Mem. Mus. Comp. Zool. Harvard*, vol. 55, 1938.
- CLARK, H. L. *The Echinoderms of Australia*. Carnegie Institution of Washington, publication 556. Washington D.C., 1946.

**Molluscs**

- HODGKIN, E. P. and others. *The Shelled Gastropoda of South-Western Australia*. Handbook No. 9 of the Western Australian Naturalists' Club. Perth, 1966.
- WILSON, B. R. and GILLETT, K. *Australian Shells*. A. W. and A. W. REED, Sydney, 1971.

**Coelenterates**

- CARLGREN, O. 'Actiniaria and Zoantharia from South and West Australia'. *Arkiv för Zoologi*, vol. 6, pt 34, 1954, pp. 571-95.
- WELLS, J. W. 'Two new scleractinian corals from Australia'. *Rec. Aust. Mus.*, vol. XXV, No. 2, 1962, pp. 239-42.

**Crustaceans**

- GEORGE, R. W. 'Description of *Panulirus cygnus* sp. nov., the Commercial Crayfish (or Spiny Lobster) of Western Australia'. *J. Roy. Soc. W. Aust.*, vol. 45, pt 4, 1962, pp. 100-10.
- GEORGE, R. W. 'Tropical spiny lobsters, *Panulirus* spp., of Western Australia (and the Indo-West Pacific)'. *J. Roy. Soc. W. Aust.*, vol. 51, pt 2, 1968, pp. 33-8.
- GEORGE, R. W. and MARY E. KNOTT. 'The Ocypode Ghost Crabs of Western Australia (Crustacea, Brachyura)'. *J. Roy. Soc. W. Aust.*, vol. 48, pt 1, 1965, pp. 15-21.
- GEORGE, R. W. and GRIFFIN, D. J. G. 'The Shovel-nosed Lobsters of Australia'. *Australian Natural History*, vol. 17, 1972, pp. 227-31.
- STEPHENSON, W. 'Some Interesting Stomatopoda—Mostly from Western Australia'. *J. Roy. Soc. W. Aust.*, vol. 45, pt 2, 1962, pp. 33-43.
- STEPHENSON, W. and MCNEILL, F. 'The Australian Stomatopoda (Crustacea) in the Collections of the Australian Museum, with a Check List and Key to the known Australian Species'. *Rec. Aust. Mus.*, vol. XXIII, No. 5, 1955, pp. 239-65.
- STEPHENSON, W. and others. 'The Australian Portunids (Crustacea; Portunidae)'. *Aust. J. Mar. Freshw. Res.*, vol. 8, pp. 312-68, 491-507, vol. 10, pp. 84-124, vol. 11, pp. 73-122, vol. 12, pp. 92-128.
- TYNDALE-BISCOE, MARINA and GEORGE, R. W. 'The Oxystomata and Gymnopleura (Crustacea Brachyura) of Western Australia with descriptions of two new species from Western Australia and one from India'. *J. Roy. Soc. W. Aust.*, vol. 45, pt 3, 1962, pp. 65-96.

**Spiders**

- MAIN, B. Y. 'The Biology of Aganippine Trapdoor Spiders (Mygalomorphae Cterizidae)'. *Australian Journal of Zoology*, vol. V, 1957, pp. 402-73.
- MAIN, B. Y. *Spiders of Australia*. Jacaranda Press, Brisbane, 1964.

**Insects**

WATSON, J. A. L. *The Dragonflies (Odonata) of South-Western Australia*. Handbook No. 7 of the Western Australian Naturalists' Club. Perth, 1962.

**General**

*The Journal of the Royal Society of Western Australia*, vol. 1 (1915)-vol. 51 (1968).

MAIN, A. R. *A Guide for Naturalists*. Handbook No. 4 of the Western Australian Naturalists' Club. 2nd ed. Perth, 1968.

*Records of the Western Australian Museum and Art Gallery*, vol. 1, pts 1 (1910), 2 (1912), 3 (1914) and vol. 2, pt 1 (1939).

*The Western Australian Naturalist*, vol. 1 (1947)-vol. 10 (1968).

**Conservation**

MARSHALL, A. J. and others. *The Great Extermination*. Heinemann, Adelaide, 1966.

RIDE, W. D. L. *A Guide to the Native Mammals of Australia*. Oxford University Press, Melbourne, 1969.

RIDE, W. D. L. and others. *National Parks and Nature Reserves in Western Australia*. Government Printer, Perth, 1966.

SERVENTY, D. L. 'Fauna Conservation in Australia and in Australian-controlled New Guinea'. *Proc. Tenth Pacific Science Congress*, 1961, published 1963, pp. 212-27.

SERVENTY, D. L. 'The Menace of (Animal) Acclimatization'. *Emu*, vol. 36, 1937, pp. 189-96.

SERVENTY, D. L. 'Reflections on Bird Protection—the Neglect of Habitat Preservation'. *Emu*, vol. 40, 1940, pp. 153-8.

SERVENTY, V. *A Continent in Danger*. Andre Deutsch, London, 1966.

SERVENTY, V. 'The Requirements of a Conservation Programme'. *Fauna Bull. W. Aust.*, No. 1, 1956, pp. 5-8.

Special publications and *Viewpoint* series published by the Australian Conservation Foundation. Canberra, 1967- .

**Marine Ecology**

HODGKIN, E. P., MARSH, L. and SMITH, G. G. 'The Littoral Environment of Rottnest Island'. *J. Roy. Soc. W. Aust.*, vol. 42, pt 3, 1959, pp. 85-8.

MARSH, L. M. and HODGKIN, E. P. 'A Survey of the Fauna and Flora of Rocky Shores of Carnac Island, Western Australia'. *The Western Australian Naturalist*, vol. 8, pt 3, 1962, pp. 62-72.

HODGKIN, E. P. and PHILLIPS, B. F. 'Sea temperatures on the coast of South-Western Australia'. *J. Roy. Soc. W. Aust.*, vol. 52, pt 2, 1969, pp. 59-62.

## Chapter II—continued

### Part 5—Entomology in Western Australia

With Particular Reference to Agriculture

Contributed by C. F. H. Jenkins, M.A.,

(Chief, Biological Services Division, Department of Agriculture)

The entomological field in Western Australia is so vast and the number of active workers on the subject so few that much still remains to be learned about the insects found in this State. A wide range of environmental conditions exists, from the tropical north to the temperate south, and the geographical isolation of the State has allowed the development of numerous endemic forms. As may be expected, the insect fauna of the Kimberley Division shows closer affinities with that of North Queensland than with the lower half of the State. The central desert, which reaches the coast to the south along the Great Australian Bight and to the north along the Eighty Mile Beach, forms an effective barrier discernible in the distribution of flora, mammals, insects and birds.

Owing to the limitations of space no attempt has been made to cover all the various insect orders which occur in the State, but the economic importance of various groups and their influence on major agricultural industries have been outlined, and some of the more outstanding forms of general interest have been mentioned. A section has been included dealing with the use of pesticides in Western Australia.

#### CLASS INSECTA (Insects)

##### Order Collembola (Springtails)

The springtails include the lucerne flea (*Sminthurus viridis*) which was introduced into this State from eastern Australia in about 1910. It has spread to almost all the clover-growing areas in the South-West and is a very serious pasture pest. Partial control is exercised by the predatory bdellid mite (*Bdellodes lapidaria*).

##### Order Odonata (Dragonflies and Damselflies)

These insects are predatory in both the immature and adult stages and are usually regarded as beneficial creatures. However, they sometimes injure vegetable seedlings by ovipositing into furrow-irrigated crops. This has occurred mainly at Carnarvon where surface water is scarce and where irrigated plants are presumably mistaken for aquatic vegetation.

In order to survive in the diverse climatic conditions which exist in Western Australia, some members of the dragonfly group have developed the ability to breed in highly saline waters and to take advantage of ephemeral inland pools.

##### Orders Orthoptera, Mantodea, Blattodea, Phasmatodea (Grasshoppers, Locusts, Mantids, Cockroaches, etc.)

The grasshoppers and locusts are represented by a large number of different species. The most important pest form is the small plague grasshopper (*Austroicetes cruciata*). The normal habitat of this species lies roughly between the ten inch and the fifteen inch isohyets. For breeding it favours hard, bare soil and as extensive areas once utilised for wheat growing have now reverted to grazing, these uncultivated tracts periodically give rise to serious grasshopper swarms, which menace the adjacent wheat lands. The Australian plague

locust (*Chortoicetes terminifera*), so troublesome in other States, occurs in Western Australia but rarely as a plague species. In the Kimberley the yellow-winged locust (*Gastromargus musicus*), the migratory locust (*Locusta migratoria*) and the spur-throated locust (*Austracris guttulosa*) assume plague proportions, but in the southern agricultural districts they occur in the solitary phase only. The mantids (Mantidae) are represented by many different species. Their well-developed fore-limbs are admirably adapted for catching prey and, like their foliage-feeding relatives the phasmids or leaf insects (Phasmatidae), their colouring harmonises remarkably with the sticks and leaves on which they rest. The cockroach fauna includes a large number of native species as well as several introduced forms. The commonest pest species is the cosmopolitan American cockroach (*Periplaneta americana*). Some large and quite colourful forms occur in the inland regions with the genus *Polyzosteria* well represented.

### Order Isoptera (Termites)

The so-called white ant is a serious pest in all parts of the State. Earth-dwelling types occur mainly, and among the most important species may be cited the large *Mastotermes darwiniensis* of the north and the widely distributed *Coptotermes acinaciformis*. The large mounds of the grass-eating *Nasutitermes triodiae* are characteristic of certain landscapes in the pastoral areas. Heavy annual losses are caused by termite damage and the use of such chemicals as dieldrin, aldrin, chlordane and creosote is recommended for the protection of timber structures.

### Order Phthiraptera (Lice)

Indigenous species occur on birds and native mammals, and various introduced forms infest domestic poultry, horses, cattle and sheep.

### Order Thysanoptera (Thrips)

This order is represented locally by a large number of native species as well as several introduced forms. The most serious native species is *Thrips imaginis* which may swarm in apple blossoms and seriously affect the crop setting.

*Thrips tabaci*, often called the tobacco or onion thrips, is a carrier for the plant disease spotted wilt. Severe damage to tomato plants may result from this virus.

### Order Hemiptera (Bugs, Aphids, Scale Insects)

This group contains a large number of pest species, many of them introduced. A serious vegetable pest is the green vegetable bug (*Nezara viridula*) which is partially controlled by an introduced wasp parasite, *Trissolcus basalus*. The native Rutherglen bug (*Nysius vinitor*) may at times swarm on vegetables and fruit trees, but seems less serious in this State than on the other side of the continent. The crusader bug (*Mictis profana*), so named because of the light-coloured St Andrew's cross on the back of the adult, feeds normally on acacias and other native plants, but it frequently invades cultivated areas and it may be troublesome to young citrus. The apple dimpling bug (*Campylomma livida*) is a native species which sometimes causes severe malformation of apples by feeding upon the very small developing fruit.

One native aphid (*Anomalaphis comperei*) has been recorded. The only two districts from which it has so far been collected are Albany and Karridale where it has been found infesting native peppermint (*Agonis flexuosa*). A point of interest about these occurrences is that the aphids were associated with a heavy Argentine ant infestation in the area. Since the removal of the ants, following dieldrin spraying, no further aphids have been discovered.

Numerous introduced species occur as pests on vegetables, garden plants and fruit trees, e.g. *Myzus persicae* (peaches, potatoes, rape, etc.), *Toxoptera aurantii* (citrus), *Brevicoryne brassicae* (cabbages, cauliflowers, rape, etc.) and *Eriosoma lanigerum* (woolly aphid of apples). The cowpea aphid (*Aphis craccivora*) which carries a virus disease of subterranean clover known as 'stunt' has also been found attacking lupins.

Of the native coccids the gall-forming members of the genus *Apiomorpha* are among the most remarkable. The woody galls in which the female insects pass their days vary from small structures a fraction of an inch across to woody knobs the size of an apple. From an economic point of view, however, the various introduced scale insects demand most attention. Included in the list of pest species are the following:

- San Jose scale (*Quadraspidiotus perniciosus*), which is a serious pest of apples.
- Citrus red scale (*Aonidiella aurantii*), which is found mainly on citrus but with a wide host range.
- Brown olive scale (*Saissetia oleae*), which is found attacking citrus, stone fruits and garden shrubs.
- White wax scale (*Ceroplastes destructor*), which is mainly a pest of citrus but also attacks many cultivated shrubs.
- Soft brown scale (*Coccus hesperidum*), which has a wide host range but is of greatest importance on citrus.
- Grass-crown mealybug (*Antonina graminis*), which is a widespread and troublesome pest causing damage to lawns particularly in the warmer parts of the State.

### Order Coleoptera (Beetles)

This order is the dominant one among existing insects and is represented in Western Australia by many and varied forms. The carnivorous ground beetles (Carabidae) are widely distributed, one of the best-known species being the bright green stink beetle (*Calosoma schayeri*). The tiger beetles, of the sub-family Cicindelinae, are of interest not only because of the metallic colouration seen in many forms but because of their association with the inland salt-lakes. The larvae are subterranean and may be collected by digging on the lake margins.

The ladybirds (Coccinellidae) comprise a group of considerable economic importance and in addition to native species the State contains a number specially introduced to combat various scale insects and aphids. Among the best known of the introduced species are *Cryptolaemus montrouzieri* and *Leis conformis*. The larvae of *Cryptolaemus* are covered with a whitish material which makes the insect superficially resemble the mealybugs upon which it feeds. *Leis conformis* in conjunction with the wasp parasite *Aphelinus mali* plays an important role in combating the woolly aphid of apple trees. Destructive leaf-eating ladybirds belonging to the genus *Henosepilachna* were once found only in the northern parts of the State where they attack vegetables, especially pumpkins and melons. In 1956, specimens of *Henosepilachna* were collected in Perth. Since then they have become established in several suburban areas, but how the introduction occurred is not known.

The jewel beetles (Buprestidae) contain some of the most colourful beetles to be found anywhere in the world. Western Australia is particularly rich in species and at times the beetles may be found in large numbers on flowering mallee and sand plain flora. One of the commonest is the metallic green *Stigmodera gratiosa*, and one of the largest is *Julodimorpha bakewelli*, measuring almost three inches in length. Although the beetle larvae are wood borers, closely resembling the 'bardee' in appearance and habits, they are of little economic importance.

The cockchafers or scarabs (Scarabaeidae) are represented by a great diversity of forms. Several species may swarm on to flowering fruit trees and roses in the early summer and are popularly known as spring beetles. The bronze-coloured *Colymbomorpha lineata* is a common pest of apple trees during the blooming period and the saddle-backed beetle (*Phyllotocus ustulatus*) sometimes visits citrus blossoms in large numbers. An introduced species commonly known as the black beetle (*Heteronychus arator*) has gained a firm footing in the State and is a troublesome pest of lawns and turf. It is also growing in importance as a pasture and vegetable pest. A native species of *Colpochilodes* has caused spasmodic damage to cereal crops and clover pastures in the southern portions of the State.

The longicorn beetles (Cerambycidae) are a group of wood-boring insects represented by a number of different species. They are often blamed for the death of forest eucalypts, although investigations have shown that heavy beetle infestations are usually secondary

and that healthy trees are seldom seriously affected by the beetles. The larval stage of this group is the so-called 'bardee', at one time prized by the Aborigines as food. They are not a pest of structural timber as they do not attack seasoned material.

The leaf beetles (Chrysomelidae) may superficially resemble ladybirds in general appearance as some of them are rounded and quite brightly coloured. Two species have been introduced into the State for the purpose of combating St John's Wort, a troublesome weed in some districts. *Chrysomela gemellata* and *C. hyperici* were originally introduced into Australia from the South of France and liberated in Victoria with very satisfactory results. The local colonies were obtained from the latter source and have become established in several districts. In some situations a reduction in St John's Wort can be attributed definitely to beetle activity, but in many areas the picture is obscure due to the extensive use of chemical sprays.

Common pest species in eastern Australia are the pumpkin beetles (*Aulacophora hilaris* and *Rhaphidopalpa palmerstoni*). These beetles are found in the north of the State but do not extend into the cooler latitudes.

The weevils (Curculionidae) are a very specialised group characterised by the presence of a rostrum or 'snout' which bears the mouth and antennae. The genus *Leptopius* contains a number of large greyish weevils, many of which breed in association with acacias. One of the best-known members of the family is *Catasarcus asphaltinus* which feeds on eucalypt foliage and may disfigure young street trees. The almost world-wide rice weevil (*Sitophilus oryzae*) is our principal pest of stored grain, but the granary weevil (*S. granarius*) also occurs. Two common orchard pests are the introduced apple weevil (*Otiorrhynchus cribricollis*) and Fuller's rose weevil (*Pantomorus cervinus*).

#### Order Neuroptera (Lacewings)

This order contains a number of useful insects, for many of the neuropterous larvae feed upon scale insects and other pests. The family Myrmeleontidae has a number of large, rather dragonfly-like species, the larval stages of which build conical sand pits and are commonly known as ant lions. Amongst the most remarkable of the local lacewings are two members of the family Nemopteridae in which the hind wings are greatly modified. In the genus *Croce* they are long and thread-like and in the spoonwinged lacewing (*Chasmodon hutti*) they are spoon-shaped or paddle-shaped.

#### Order Diptera (Flies, Mosquitoes, etc.)

This group contains a vast number of species, many of which are of major economic importance.

The mosquitoes are well represented, the commonest species being the brown house mosquito (*Culex fatigans*) and the yellow-fever mosquito (*Aedes aegypti*). The latter species is the carrier for dengue fever in the northern portion of the State. The anophelines are represented by the widely distributed *Anopheles annulipes* and several much rarer forms. *A. annulipes*, together with *Aedes alboannulatus*, have played an important part in the spread of the rabbit virus *Myxomatosis*.

Of the introduced flies, those causing most trouble are the Australian sheep blowfly (*Lucilia cuprina*) and the Mediterranean fruit fly (*Ceratitis capitata*). The buffalo fly (*Haematobia exigua*) is a serious stock pest in the Kimberley Division of the State, but so far has not become established in the cattle areas of the south. It is believed to have originally reached Australia on buffaloes introduced from Asia.

The common house fly (*Musca domestica*) is widespread as is also the native bush fly (*Musca vetustissima*).

Insecticides such as DDT, dieldrin and the various organic phosphates gave outstanding control of various fly pests for several years. The widespread development of resistance in both housefly and blowfly populations has greatly complicated the matter, however, and drawn attention to the importance of preventive measures, such as sanitation in the case of houseflies, and the Mules operation and crutching in the case of the sheep blowfly.

The March flies (Tabanidae) are well represented but, although their blood-sucking habits render them annoying, both to livestock and humans, they are not a serious pest.

Of the many useful flies may be mentioned the blowfly-like tachinids which parasitise caterpillars, grasshoppers and other pests and the bee flies (Bombyliidae) which parasitise the eggs of other insects. The maggots of the bombyliid fly (*Cryptomorpha flaviscutellaris*) are commonly found in the egg pods of the small plague grasshopper (*Austroicetes cruciata*).

### Order Siphonaptera (Fleas)

A number of introduced as well as native fleas occur in this State. *Echidnophaga myrmecobii*, found originally on native mammals, is a very common parasite of rabbits in the drier parts of the State. The poultry stickfast flea (*E. gallinacea*) closely resembles the former species but is mainly a pest of poultry and domestic animals. The oriental rat flea (*Xenopsylla cheopis*), the human flea (*Pulex irritans*) and the cat and dog fleas (*Ctenocephalides felis* and *C. canis*) are among the most important introduced species.

### Order Lepidoptera (Moths, Butterflies, etc.)

The primitive swift moths (Hepialidae) are represented locally by a number of very beautiful forms. The larvae are wood borers but do not occur in sufficient numbers to constitute a serious forestry pest. Several large and striking members of the genus *Aenetus* occur in the lower South-West.

A group of small native moths of the family Pyralidae, sub-family Crambinae and commonly known as pasture webworm moths (*Hednota pedionoma*, *H. crypsichroa*, etc.) are serious pests of cereal crops (excepting oats) and grass pastures. Depredations are controlled by planting on clean fallow, but the recent trend towards ley farming has greatly favoured these pests.

A family of considerable interest to the orchardist is the Tortricidae, in which group are included the codling moth (*Cydia pomonella*) and the oriental fruit moth (*C. molesta*). Outbreaks of codling moth have occurred on a number of occasions, but drastic eradication measures have so far prevented this major apple pest from becoming permanently established and have given Western Australia the distinction of being the only large apple-producing country where the moth is not a major problem. The oriental fruit moth has not recurred since eradication measures were taken against an outbreak in the Bickley Valley in 1952.

One of the best-represented families is the Noctuidae which contains several important pests. Included under this heading are the native budworm (or climbing cutworm) and the cotton bollworm (*Heliothis punctigera* and *H. armigera*), the cluster caterpillar (*Spodoptera litura*), the rough bollworm (*Earias huegeli*), the brown cutworm (*Agrotis munda*) and the southern army worm (*Persectania ewingii*). The first four species are serious pests in the cotton areas of the north. The fruit-sucking moth (*Othreis materna*) also belongs to this group and causes heavy losses in citrus fruit grown around pastoral homesteads in the Kimberley and the North-West. In almost all cases where moths and butterflies are regarded as pests it is only the caterpillar stage which is destructive. The fruit-sucking moth, however, has a rasp-like proboscis capable of piercing orange and citrus skins and then sucking up the juice. Fortunately the creatures do not normally range to the citrus areas of the South-West.

One of the most remarkable members of the family Agaristidae is the whistling moth (*Hecatesia thyridion*). The male of this species is active just at sunset and makes a loud clicking noise during its fast circling flight.

Other common moth pests are the cabbage moth (*Plutella xylostella*), the potato moth (*Phthorimaea operculella*) and the apple looper moth (*Chloroclystis laticostata*).

The beautiful *Carthaea saturnioides* with its large eye spots on the wings superficially resembles the emperor moths. Its range is restricted to south-west Australia and the creature is much prized by collectors.

The butterfly fauna of the State lacks many large and showy forms. Some of the northern species such as *Hypolimnias bolina nerina* are quite colourful but the State has nothing to compare with the conspicuous and beautiful species found in the tropics of eastern Australia.

The blues (Lycaenidae) are well represented and the association of many larvae with ant nests renders the group a particularly interesting one.

The skippers (Hesperiidae) are relatively drab-coloured butterflies with strong powers of flight. Over twenty species are recorded from the State and some forms are endemic to the South-West.

Only one butterfly is of economic importance and that is the introduced cabbage white butterfly (*Pieris rapae*) which reached this State in 1943. It attacks cabbages, cauliflowers and related plants as well as one or two other strong-tasting herbs such as watercress. The butterfly belongs to the whites, or Pieridae, which group contains a number of native species. Several members of this family, including the introduced cabbage white, display extraordinary powers of flight and the native caper white (*Anaphaeis java teutonia*) has been observed to carry out mass migrations of remarkable proportions on the eastern side of the continent.

A rather showy butterfly which appears to have become established here recently, at least around the Perth area, is the wanderer or monarch (*Danaus plexippus*). This large orange and black butterfly has apparently reached Western Australia from the other States. The colourful larvae feed on certain noxious weeds such as the introduced narrow-leaf cotton-bush (*Asclepias fruticosa*).

### Order Hymenoptera (Bees, Wasps, Ants)

The wood wasps and Sirex wasps (Siricidae) include several pests which have been established in New Zealand and Tasmanian pine forests. Imported timber (including 4 million superficial feet of prefabricated housing material) has been fumigated from time to time following the location of infested material.

The sawflies (Tenthredinidae) are represented locally by a number of native forms. The larvae of the genus *Perga* may often be seen in caterpillar-like clusters amongst the foliage of eucalypts. An introduced sawfly (*Caliroa cerasi*) is a common pest on pear and plum trees. The smaller parasitic wasps (ichneumonids, chalcids and their allies) are well represented and play an important role in combating many insect pests. Some attack insect eggs while others parasitise caterpillars, aphids and scale insects, so that without their aid the problem of pest control would be even more difficult than at present.

The ant fauna (Formicidae) of the State is extremely varied. One of the best-known native species is the meat ant or mound ant (*Iridomyrmex detectus*) which often nests on gravel paths and road-sides. Among the most remarkable of the local ants may be listed *Camponotus inflatus*, the honey-pot ant of the interior, and *Myrmecia regularis* of the karri forest area which has the frog *Metacrinia nicholli* as a tolerated guest in its nest. The honey-pot ant derives its name from the fact that certain individuals in the nest store honey until their abdomens become inflated to the size of grapes. This honey is then regurgitated to other ants as required. These ants were once prized by the natives as a food delicacy.

Two important introduced ant pests are the Argentine ant (*Iridomyrmex humilis*) and the Singapore ant (*Monomorium destructor*). The Argentine ant was once widespread in the metropolitan area, Albany and Bunbury, with several other country outbreaks. The insect has been reduced in recent years, however, as a result of a large-scale control campaign. The scheme involved the spraying of all infested areas, with government-controlled labour, and a restriction on the movement of goods likely to spread the pest. Since the commencement of the campaign in 1954 approximately 58,000 acres have been treated at a cost of just under \$2 million.

The social wasps (Vespidae) were once known only from the northern portion of the State. About 1949, however, colonies of *Polistes variabilis* were located in various parts of the Perth suburban area and they have now extended to some of the orcharding districts in the Darling Range. How the introduction occurred is not known.

The burrowing wasps, including the sand wasps (Pompilidae), the flower wasps (Scoliidae) and solitary ants (Mutillidae) are well represented. The mutillids are, of course, not true ants but the wingless females bear a superficial resemblance to ants which is further accentuated by their ability to inflict a painful sting. The flower wasps are particularly numerous and winged males carrying wingless females are common around

flowering plants in the early summer. Of the solitary ants the black and white *Ephutomorpha cribricollis* is the best known. Most of the wasps mentioned are beneficial, for they store caterpillars and other insects in mud nests and underground burrows to serve as food for the wasp grubs.

The majority of native bees are solitary forms although some, like the Colletidae, often choose a common site for nest burrowing and hundreds of tunnels may be located close to one another.

The leaf-cutting bees (Megachilidae) often attract notice from their habit of cutting circular pieces from rose leaves and other foliage for use in nest construction.

The only native social bees belong to the genus *Trigona* which does not occur in the southern portions of the State.

#### CLASS ARACHNIDA (Spiders, Mites, Ticks, etc.)

Creatures grouped under the above heading are, of course, not true insects and will be dealt with only very briefly. Several forms are of considerable economic importance, as for example the cattle tick (*Boophilus microplus*) and the fowl tick (*Argas persicus*). The cattle tick is confined to the Kimberley Division and its range corresponds roughly with that of the buffalo fly. The ornate kangaroo tick (*Amblyomma triguttatum*) is a common species. It is occasionally collected as an accidental parasite on domestic animals and man.

The most serious mite pest is the red-legged earth mite (*Halotydeus destructor*) which is very destructive to young legumes and other seedlings. It may be particularly troublesome on subterranean clover pastures. Other mites of importance to orchardists and market gardeners are the spider mites (Tetranychidae) which include such cosmopolitan species as the two-spotted mite (*Tetranychus urticae*) and the bryobia mite (*Bryobia rubrioculus*).

Spiders constitute a large group, most of which are useful on account of their insectivorous habits, although bites from some of the larger species may produce painful after-effects. The most dangerous local spider is the red-backed spider (*Latrodectus mactans hasselti*). This species, whose bite may even prove fatal, is easily recognised by the conspicuous red streak down the centre of the abdomen.

Scorpions of various kinds are widely distributed over the State and the larger ones may be able to inflict a painful sting. There is one record of a baby dying at Pemberton from the effects of scorpion venom but no other reports of serious after-effects are available and, generally speaking, the group is of little local importance.

#### PEST CONTROL WITHOUT INSECTICIDES

The past twenty-five years might be regarded as the era of chemical pest control, for, since the advent of DDT, there has been a constant stream of new pesticides, many of which have given almost miraculous control of serious agricultural pests as well as the carriers of many human and stock diseases. However, there is an increasing awareness of harmful side-effects which may result from the wholesale use of chemicals, and their application is now being restricted as much as possible.

Two of the most serious problems associated with the use of pesticides are the accumulation of residues in foodstuffs and animal tissues, and the development of resistance by many types of insects and mites.

##### Residues

In addition to their direct health hazards, the residue problems have an important effect upon international quarantine and world trade, and the World Health Organization has suggested certain principles which should be followed when considering consumer safety. At its conference in 1961, a Joint Meeting on Pesticide Residues sponsored by the Food and Agriculture Organization defined these principles as follows :

The contamination of human and animal food should be restricted to the lowest possible level and the amount of a residue should not be higher than that which results from good agricultural practice, provided that the final amount is accepted as safe for long-term consumption by man.

Regulations governing the use of pesticides in Western Australia are based upon these principles and appropriate Government committees have been constituted to keep a check on possible health hazards and environmental pollution which may result from the widespread use of chemicals.

### Resistance

Resistance to pesticides is not a new problem, but the number of insects and mites showing resistance, or increased tolerance, to one or more chemicals has grown so rapidly in recent years as to constitute a major problem. Local pests now showing varying degrees of resistance to chemicals which once gave excellent control, include the Australian sheep blowfly (*Lucilia cuprina*), the house fly (*Musca domestica*), the rice weevil (*Sitophilus oryzae*), the rust-red flour beetle (*Tribolium castaneum*), the two-spotted mite (*Tetranychus urticae*) and the cotton bollworm (*Heliothis armigera*). Alternative control measures are being investigated for these and other species.

### INTEGRATED PEST CONTROL

In an effort to reduce the use of chemicals, particularly those dangerous to humans and wildlife or associated with resistance, various other methods of pest control are now receiving attention, and renewed emphasis is being placed upon biological control and the use of natural enemies such as parasites, predators and different types of disease.

Some of our most serious agricultural pests have been introduced from abroad, and one of the reasons for their pest status is the fact that many insects, mites and weeds have been able to flourish in their new environment, free from the controlling influence of natural enemies. As a result of this knowledge, surveys have been made in many foreign countries to select parasites and diseases which could be safely established in Australia to help in pest control. Western Australia's interest in this matter dates back to 1901 when George Compere was jointly employed by the Californian and Western Australian Governments to collect beneficial insects for trial in both countries. As a result of this early work and numerous subsequent introductions, many useful insects and mites have been established in Western Australia with beneficial results.

Some of the most successful introductions relate to wasp parasites and predatory ladybirds which attack scale insects; a tiny wasp which controls woolly aphids on apple trees; a wasp parasite which attacks the egg rafts of the green vegetable bug, and a small wasp which attacks the caterpillars of the cabbage white butterfly.

Current introductions of considerable interest are several predatory mites which have been introduced by CSIRO to combat the lucerne flea and the red-legged earth mite, and a series of dung beetles (*Onthophagus*, *Liatongus* and *Copris* species) and histerid beetles (*Hister* spp.), to combat bush and buffalo flies. The dung beetles rapidly destroy cattle droppings and so reduce breeding of the flies whereas the histerids are predacious and prey on the fly larvae.

In addition to the introduced parasites and predators there is a wide variety of native insects and mites, which have an important influence on many pest species. The native budworm (*Heliothis punctigera*) is attacked by the small tachinid flies (*Exorista curriei* and *Goniophthalmus australis*). Small parasitic wasps as well as the mud daubers and spider hunters dispose of many plant-feeding caterpillars, while assassin bugs, mantids, lacewings, scarab beetles and robber flies all destroy many harmful species.

In recent years the widespread use of pesticides has not only created residue and resistance problems, but it has greatly reduced the population of many beneficial insects, both natural and introduced, with the result that pests which were of minor importance in earlier years have suddenly assumed plague proportions. This applies, particularly, to various orchard infesting mites, and so efforts are being made to reduce the use of pesticides to a minimum and to find selective chemicals which exercise maximum control over the pest species and have a minimal effect upon parasites and predators.

### Insect Diseases

Bacteria, viruses and fungi all take their toll of insects, and naturally-occurring diseases have been found affecting native budworms, cluster caterpillars, house flies, grasshoppers, webworm caterpillars, potato moth caterpillars and various other species. The commercial production and use of disease organisms pose many difficulties, but these matters are being investigated under local conditions. A bacterial culture of *Bacillus thuringiensis* is already available as a commercial product, but tests against the cluster caterpillar and native budworm in the Kimberley have been disappointing.

### Host Resistance

It has long been known that some plants are more resistant than others to attack by certain diseases and pests, and this has been exploited by plant breeders for the protection of several crops. Many Western Australian apple trees are grown on Northern Spy and other resistant rootstocks to reduce damage by the woolly aphids, and resistant stocks are also used by many vignerons as a safeguard against grape phylloxera (*Viteus vitifoliae*). Although a pest in parts of eastern Australia, phylloxera is not present in Western Australia, but the use of resistant stocks would greatly reduce the damage should the insect ever gain a footing in this State.

Pesticides are likely to remain the most important means of insect control for some years to come, but alternative treatments are being sought with increasing intensity. In addition to the methods already outlined, the genetic manipulation of insect populations, pheromones, the use of anti-feeding and sterilisation techniques, the use of heat and cold for insect control, and the development of improved cultural and crop handling techniques indicate some of the likely alternatives which may replace chemicals in the years to come.

## FURTHER SOURCES OF INFORMATION

The difficulties confronting anyone trying to review in a few pages the entomological fauna of such a large State as Western Australia will be better appreciated if it is remembered that in the *Western Australian Year-Book* for 1898-99 the late A. M. Lea expressed the opinion that there were about 30,000 species of insects indigenous to this State. Many additions have been made in the last sixty years and one is faced with the problem of deciding which creatures warrant special mention and which must be excluded for lack of space. The general reader interested in consulting other short reviews of the local insect fauna is referred to A. M. Lea's article in the 1898-99 Year Book under the title of 'The Insects of Western Australia'; in the Year Book for 1900-01 the late H. M. Giles wrote 'A Glimpse of Western Australian Entomology'.

Two short summaries have also appeared in conjunction with science conferences in this State. The *Handbook and Review* published for the 1926 meeting of the Australasian Association for the Advancement of Science contained an article by L. J. Newman and the *Handbook* for the 1947 meeting of the Australian and New Zealand Association for the Advancement of Science printed a short summary of the local insects by L. Glauert.

Readers interested in more technical summaries are referred to Professor G. E. Nicholl's 'The Composition and Biographical Relation of the Fauna of Western Australia' (*A.N.Z.A.A.S.*, Vol. XXI, 1933, p. 93), the relevant volumes of *Die Fauna Südwest-Australiens* by Michaelsen and Hartmeyer, 1907-1930, and the report of the Swedish expedition under Dr E. Mjöberg.

More detailed information relating to the forms of economic importance will be found in the publications of the Western Australian Department of Agriculture.

Literature covering the general aspects of Australian entomology and pesticide usage includes:

ANON. *The Insects of Australia*. Division of Entomology, C.S.I.R.O. University Press, Melbourne, 1970. 1029 pp.

ANON. *Use of Pesticides*. A Report of the President's Science Advisory Committee. Government Printing Office, Washington, D.C., 1963. 25 pp.

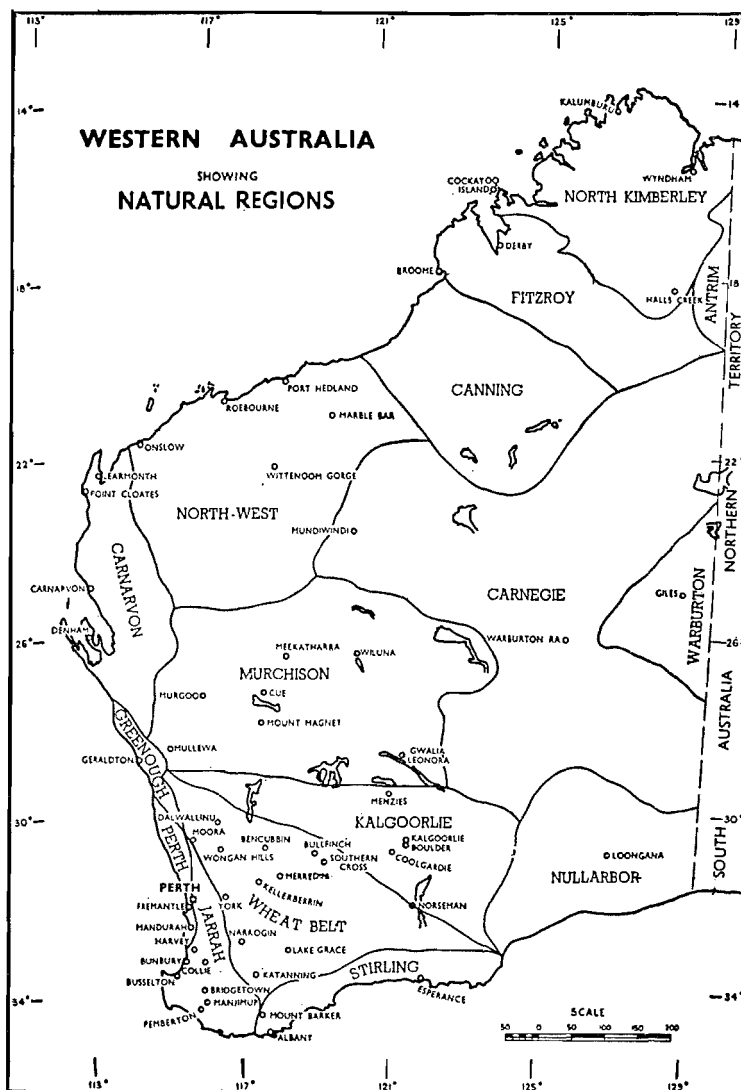
- BARRETT, C. AND BURNS, A. N. *Butterflies of Australia and New Guinea*. N. H. Seward Pty Ltd, Melbourne, 1951. 187 pp.
- BURNS, ALEXANDER N. *Australian Butterflies In Colour*. Reed, Sydney, 1969. 112 pp.
- CARSON, R. *Silent Spring*. Hamish Hamilton, London, 1963. 304 pp.
- COMMON, I. F. B. *Australian Moths*. Jacaranda Press, Brisbane, 1963. 128 pp.
- COMMON, I. F. B. *Australian Butterflies*. Jacaranda Press, Brisbane, 1966. 131 pp.
- MCKEOWN, K. C. *Australian Insects*. An Introductory Handbook. Published by R.Z.S. of N.S.W., Sydney, 1945. 303 pp.
- MAIN, BARBARA YORK. *Spiders of Australia*. Jacaranda Press, Brisbane, 1964. 124 pp.
- MELLANBY, K. *Pesticides and Pollution*. Collins, London, 1967. 221 pp.
- RIEK, EDGAR. *Insects of Australia*. Jacaranda Press, Brisbane, 1963. 128 pp.
- TILLYARD, R. J. *The Insects of Australia and New Zealand*. Angus and Robertson Ltd, Sydney, 1926. 560 pp.
- WATERHOUSE, G. A. *What Butterfly is That*. A Guide to the Butterflies of Australia. Angus and Robertson Ltd, Sydney, 1932. 291 pp.
- WATSON, J. A. L. *The Dragonflies (Odonata) of South-Western Australia*. Western Australian Naturalists' Club, Perth, 1962. 72 pp.
- WHITTEN, J. L. *That We May Live*. D. van Nostrand Co., Princeton, New Jersey, 1966. 251 pp.

## Chapter II—continued

### Part 6—Natural Regions

Contributed by Rex T. Prider, B.Sc., Ph.D., F.G.S., M. Aust.I.M.M.  
(Professor of Geology, University of Western Australia)

The physical features, geology, climate, flora and fauna of Western Australia have been outlined earlier in this Chapter and the subdivision of the State into 'natural regions' may now be considered. A Natural Region is one clearly marked off from neighbouring regions by topographical, geological, climatic, or biological conditions, or by combinations of these, so that, as far as Man's activities are concerned, they have different economic possibilities.



## CHARACTERISTICS OF THE NATURAL REGIONS OF WESTERN AUSTRALIA

The subdivision of Western Australia into Natural Regions (see map on page 97) has been described by E. de C. Clarke in *Jour. Roy. Soc. West. Aust.*, vol. XII, pp. 117-32. A summary of the characteristics of these different Natural Regions (reprinted by courtesy of the University of Western Australia Press from Clarke, Prider and Teichert: *Elements of Geology for Western Australian Students*) is given below.

NATURAL REGION	TOPOGRAPHY	GEOLOGY	RAINFALL	WATER SUPPLY (a)	VEGETATION, ETC.
ANTRIM (geographic)	Tableland	Cambrian sediments and lavas	Summer, monsoonal, 20 to 40 inches	Catchments, wells and artesian	Grassland and savannah
NORTH KIMBERLEY (geographic)	Dissected stony tableland	Younger Precambrian	Summer, monsoonal, 30 inches or more	Streams, springs, catchments	Luxuriant in valleys, sparse on tableland
FITZROY (chief river)	Very wide valleys and low hills	Palaeozoic (largely Permian)	Summer, monsoonal, 20 to 30 inches	Catchments and artesian	Grassland and savannah
CANNING (A. W. Canning, surveyor and explorer)	Sand ridges and table-top hills	Palaeozoic and Mesozoic	Summer, 15 inches or less	Springs, pools, artesian water? (undeveloped)	'Spinifex' (species of <i>Triodia</i> ) and desert shrubs
CARNEGIE (David Carnegie, explorer)	Sand ridges and table-top hills	Mesozoic, Palaeozoic and Younger Precambrian	Variable and unreliable, probably about 5 inches	Catchments	'Spinifex' and desert shrubs
WARBURTON (Warburton Range)	Hills (some over 3,000 feet) separated by sandy country	Older Precambrian	Variable and unreliable, perhaps about 5 inches. Probably better than Carnegie Region owing to high hills	Catchments, some springs	'Mulga' (species of <i>Acacia</i> ) and 'Spinifex'
NORTH-WEST (common usage)	Rugged hills, Rivers in well-defined valleys	Younger and Older Precambrian. Many economic minerals	Variable, unreliable, 15 inches or less	Wells, pools	'Spinifex', few shrubs and trees
MURCHISON (common usage)	Ridge hills and breakaways. Rivers in shallow beds. Salt 'lakes'	Older Precambrian. Economic minerals especially gold and nickel	Summer or winter, unreliable, 10 inches or less	Wells (potable groundwater)	'Mulga'. Eucalypts scarce except along rivers

KALGOORLIE .... (chief town)	....	Less hilly than Murchison. Salt 'lakes'. No defined water-courses except salt lake system	Older Precambrian. Economic minerals especially gold and nickel	Mainly winter, unreliable, 10 inches or less	Catchments. Ground water too salty for use	Eucalypt forest, especially Salmon Gum ( <i>E. salmonophloia</i> ), Gimlet ( <i>E. salubris</i> ) and Red Morrel ( <i>E. longicornis</i> )
WHEAT BELT .... (common usage)	....	Same as Kalgoorlie Region	Older Precambrian, but few 'greenstones'	Winter, reliable, 10 to 20 inches	Similar to Kalgoorlie Region, but ground water potable in many places; therefore wells frequent	Eucalypt forest—Salmon Gum, Gimlet, and Morrel
JARRAH .... (chief timber)	....	More dissected than Wheat Belt Region, especially near Darling Scarp	Like Wheat Belt Region but there is an extensive cuirass of laterite	Winter, reliable, 25 to 40 inches	Streams and springs	Forest of Jarrah ( <i>E. marginata</i> ), Wandoo ( <i>E. redunca</i> var. <i>elata</i> ), Karri ( <i>E. diversicolor</i> ) and Marri ( <i>E. calophylla</i> )
CARNARVON .... (chief town)	....	Elevated plain with table-top hills	Palaeozoic, Mesozoic, Tertiary and later	Summer or winter, very unreliable, about 10 inches	Artesian in many places. Catchments, pools	Sparse scrub in north, denser in south
GREENOUGH .... (river)	....	Sandstone tableland	Mesozoic and older	Winter, 15 to 20 inches	Springs, wells and catchments	Scrub
PERTH .... (chief town)	....	Coastal plain	Mesozoic and later	Winter, reliable, 20 to 35 inches	Springs, wells, artesian	Scrub, swamp and forest
STIRLING .... (prominent range)	....	Undulating tableland with abrupt ranges	Siliceous Tertiary sediments with inliers of Younger and Older Precambrian	Winter, 15 inches or less	Catchments. Stream water generally too salty for use	Heath and swamp
NULLARBOR .... (geographic)	....	Tableland, no hills	Calcareous Tertiary sediments	Winter, 10 inches or less	Catchments. Sub-artesian	Poor grassland

(a) 'Wells' refers to those that draw on ground water, but are not artesian. 'Catchments' refers to water collected on the surface—naturally in gnamma holes, artificially by conserving the run-off. 'Pools' refers to pools in watercourses and includes rock holes.

## CHAPTER III—CONSTITUTION AND GOVERNMENT

Western Australia is one of the six federated sovereign States which, together with the Northern Territory and the Australian Capital Territory, constitute the Commonwealth of Australia. Thus, in addition to having its own Parliament and executive government, it is represented in the federal legislature. As well as government at the Federal and State levels, there is a third system, that of local government, which functions through City Councils, Town Councils and Shire Councils.

### OUTLINE OF CONSTITUTIONAL DEVELOPMENT

A Legislative Council was established in Western Australia shortly after its foundation as a Crown Colony and sat for the first time in February 1832. The Council was non-elective and consisted of the Governor and four senior officials. In 1839, membership was increased to nine when the Governor nominated four unofficial members. Additional appointments were made from time to time until the dissolution of the nominee Legislative Council in 1870 with the inauguration of representative government as provided for in the Australian Colonies Government Act of 1850. This Act, which enabled the establishment of representative governments in other Australian Colonies, withheld the privilege from Western Australia until such time as the Colony should be able to defray all costs of government from its own revenues, and it was not until 1870 that it was felt that Western Australia was able to satisfy this condition. The new Legislative Council, elections for which took place in October of that year, consisted of twelve elected members, three nominees and three officials. The number of members of the Council was increased in 1874 to 21, of whom 14 were elected, in 1882 to 24, of whom 16 were elected and in 1886 to 26, comprising 17 elected members, 5 nominees and 4 officials.

Following the passage by the Legislative Council of a Constitution Act in 1889 and subsequent representations made in London by delegates sent from the Colony, responsible government was granted to Western Australia by an Imperial Act assented to on 15 August 1890. Provision was made for the establishment of a Parliament of two Houses, to be known as the 'Legislative Council' and the 'Legislative Assembly', to replace the old Council. Proclamation of responsible government was made in Perth on 21 October 1890 and election of the thirty members of the Legislative Assembly took place in November and December. The fifteen members of the Legislative Council were nominated by the Governor, as provided in the Constitution Act, and the Parliament was officially opened on 30 December 1890. The Constitution Act of 1889, while prescribing a Council which was originally nominative, contained a provision that, after the expiration of six years or on the population of the Colony reaching 60,000, the Council should become fully elective. The required population was attained in 1893 and an amendment to the Act in that year enabled the election of twenty-one members to the Legislative Council, and at the same time increased the Legislative Assembly to thirty-three members. By an amendment of 1899, membership of the Legislative Council was raised to thirty and of the Legislative Assembly to fifty. Provision was made for the Legislative Assembly to be increased to fifty-one members by the *Constitution Acts Amendment Act (No. 2), 1965*. The increase in numbers, however, did not become effective until the State general election in 1968.

On 1 January 1901, Western Australia and the five other Australian Colonies were federated under the name of the 'Commonwealth of Australia', authority for the union having been given by the Commonwealth of Australia Constitution Act which was passed by the British Parliament in 1900. By a provision of the Constitution Act the constituent parts of the Commonwealth previously designated 'Colonies' became known as

'States'. Under the Constitution, powers are divided between the Parliaments of the Commonwealth and of the States by conferring power in respect of specific subjects on the Commonwealth either exclusively or jointly with the States, leaving the remaining powers to the States.

Procedure in both Commonwealth and State Parliaments is based on British practice. The legislatures consist of the Sovereign, represented by the Governor-General of Australia or the Governor of the State, and the elected members. In the field of executive government the British 'Cabinet' system has also been adopted. The members of the Cabinets must hold seats in the legislature as elected members. The Cabinet is responsible to the Parliament and continues in office only while holding the confidence of the Parliament. All Cabinet Ministers are members of the Executive Council, the supreme group of advisers to the Crown, and the Cabinet thus provides the executive government of the Commonwealth or the State. The Executive Council is presided over by the Governor-General of Australia or the Governor of the State and at its meetings, which are formal and official in character, the decisions of the Cabinet are given legal form, appointments are made, resignations accepted, proclamations issued and regulations approved.

## VICE-REGAL REPRESENTATION

### **The Governor-General of Australia**

Under the Commonwealth Constitution, ultimate executive power is vested in the Crown and is exercised by the Governor-General as the direct representative of the Sovereign. Appointment to the office is made by the Crown after consultation with the Prime Minister of the Commonwealth. The present Governor-General is His Excellency the Right Honourable Sir Paul Hasluck, P.C., G.C.M.G., who was sworn in on 30 April 1969. During the absence from Australia of the Governor-General it is usual for the senior among the State Governors to be appointed Administrator.

### **The Governor of Western Australia**

The Governor of Western Australia is the personal representative of the Sovereign in the State and exercises the powers of the Crown in State matters. He is the titular head of the Government and performs the official and ceremonial functions attaching to the Crown. The present Governor of Western Australia is His Excellency Major-General Sir Douglas Kendrew, K.C.M.G., C.B., C.B.E., D.S.O. In the event of the Governor's absence from Western Australia the Lieutenant-Governor of the State is appointed Administrator. If there is no Lieutenant-Governor it is customary for the Chief Justice of Western Australia to be appointed Administrator.

The last Governor of Western Australia as a Colony was Lieutenant-Colonel Sir Gerard Smith, K.C.M.G., whose term of office expired on 29 June 1900 and the first Governor of the State was Captain Sir Arthur Lawley, K.C.M.G., who was sworn in on 1 May 1901. The names and dates of assumption of office of Governors, Lieutenant-Governors and Administrators from the foundation of the Colony to 1951 are shown in the *Official Year Book of Western Australia*, No. 1—1957. Subsequent appointments appear in Year Book No. 4 of 1964 and later issues. The Honourable Sir Albert Wolff, K.C.M.G., was commissioned as Lieutenant-Governor on 26 May 1968 and since that date has performed the functions of Administrator of the State during absences of the Governor.

## THE FEDERAL PARLIAMENT

The legislative power of the Commonwealth is vested in a Federal Parliament which consists of Her Majesty the Queen (represented by the Governor-General), a Senate and a House of Representatives. Subject to the Constitution, the Commonwealth Parliament is empowered to make laws concerning, among other things, defence, external affairs, customs and excise, trade and commerce with other countries and among the States, taxation, borrowing of money on public credit, currency and coinage, banking, insurance,

navigation, fisheries, quarantine, posts and telegraphs, census and statistics, immigration, naturalisation and aliens, copyrights and trade marks, bankruptcy, marriage, divorce and matrimonial causes, social services, and conciliation and arbitration for the prevention and settlement of industrial disputes extending beyond the limits of any one State. The Constitution provides that, when a law of a State is inconsistent with a law of the Commonwealth, the Commonwealth law shall prevail and the State law shall, to the extent of the inconsistency, be invalid.

The qualifications necessary for membership of the Commonwealth Parliament and for voting at federal elections are described in the *Official Year Book of the Commonwealth of Australia*.

The payment of allowances to Senators and Members of the House of Representatives is provided for in the Constitution and a superannuation scheme is established under the provisions of the *Parliamentary Retiring Allowances Act 1948-1966*.

### The Senate

The Senate consisted originally of thirty-six members, six Senators being returned from each State. The Parliament is authorised by the Constitution to increase or decrease the number of members. The growth of the population since Federation having been such as to warrant a considerable enlargement of the Parliament, a Representation Act was passed in 1948 to provide for increased membership by raising from six to ten the number of Senators from each State. At the same time the alternative system of counting of votes in elections for the Senate was altered by the Commonwealth Electoral Act to one of proportional representation, a summarised description of which is given in the *Official Year Book of the Commonwealth of Australia*, No. 38, pages 82-3.

Members are elected on the basis of adult suffrage by the people of the State which they represent. As provided by the *Commonwealth Electoral Act 1918-1966*, enrolment as an elector is compulsory for all qualified persons except those who are aboriginal natives of Australia. Aborigines, although entitled to enrol, are not required to do so. Voting is compulsory for all enrolled persons in terms of an amendment of 1924 which operated for the first time at elections held on 14 November 1925. The term of office of a Senator is normally six years. One-half of the members retire at the end of every third year and are eligible for re-election.

Elections for the Senate were held on 21 November 1970. The following table shows the Western Australian membership of the Senate as from 1 July 1971 as a result of the election.

WESTERN AUSTRALIAN MEMBERS OF THE SENATE

Due to retire on 30 June 1974		Due to retire on 30 June 1977	
Name	Political party	Name	Political party
Prowse, E. W. ....	C.P.	Cant, H. G. J. ....	A.L.P.
Sim, J. P. ....	Lib.	Drake-Brockman, T. C., D.F.C. ....	C.P.
Wilkinson, L. D. ....	A.L.P.	Durack, P. D. ....	Lib.
Willesee, D. R. ....	A.L.P.	Negus, S. A. ....	Ind.
Withers, R. G. ....	Lib.	Wheeldon, J. M. ....	A.L.P.

A.L.P. = Australian Labor Party. C.P. = Australian Country Party. Ind. = Independent.  
Lib. = Liberal Party of Australia.

### The House of Representatives

State membership of the House of Representatives is on a population basis with the proviso that each State shall have at least five members. The Constitution provides further that the number of members of the House of Representatives shall be, as nearly

as practicable, double the number of Senators. With the enlargement of the Senate from thirty-six to sixty members, the membership of the House of Representatives was increased, from the date of the 1949 elections, from seventy-four to 121, not including a member for the Australian Capital Territory, which achieved representation for the first time at this election, and a member for the Northern Territory, which had been represented since 1922. Western Australia's population growth had been such as to necessitate an increase in representation from five to eight, and this number was raised to nine in 1955 as a result of a redistribution following the Census of 30 June 1954. At the same time, the total number of members of the House of Representatives was increased to 122, excluding the two members for the Territories.

Members of the House of Representatives are elected for the duration of the Parliament, which is limited to three years, by the people of the electorate which they represent. As provided by the *Commonwealth Electoral Act 1918-1966*, enrolment as an elector is compulsory for all qualified persons except those who are aboriginal natives of Australia. Aborigines, although entitled to enrol, are not required to do so. Voting is on the preferential system and is compulsory for all enrolled persons in terms of an amendment of 1924 which operated for the first time at elections held on 14 November 1925.

Elections for the House of Representatives were held on 2 December 1972 and all Western Australian electorates were contested. The following table shows the Western Australian membership of the House before the election and at 31 December 1972.

#### WESTERN AUSTRALIAN MEMBERS OF THE HOUSE OF REPRESENTATIVES

Electoral division	Before election of 2 December 1972		At 31 December 1972	
	Name	Political party	Name	Political party
Canning	Hallett, J. M. ....	C.P.	Hallett, J. M. ....	C.P.
Curtin	Garland, R. V. ....	Lib.	Garland, R. V. ....	Lib.
Forrest	Kirwan, F. McL. ....	A.L.P.	Drummond, P. H. ....	Lib.
Fremantle	Beazley, K. E. ....	A.L.P.	Beazley, K. E. ....	A.L.P.
Kalgoorlie	Collard, F. W. ....	A.L.P.	Collard, F. W. ....	A.L.P.
Moore	Maisey, D. W. ....	C.P.	Maisey, D. W. ....	C.P.
Perth	Berinson, J. M. ....	A.L.P.	Berinson, J. M. ....	A.L.P.
Stirling	Webb, C. H. ....	A.L.P.	Viner, R. I. ....	Lib.
Swan	Bennett, A. F. ....	A.L.P.	Bennett, A. F. ....	A.L.P.

A.L.P. = Australian Labor Party. C.P. = Australian Country Party.

Lib. = Liberal Party of Australia.

Each of these Commonwealth electoral divisions comprises several subdivisions. The names of each subdivision and the number of electors therein at 25 October 1969 were given in the *Western Australian Year Book*, No. 10—1971, together with the area of each division and maps showing the boundaries of the nine electoral divisions.

#### THE STATE PARLIAMENT

The Crown, represented by the Governor, and the Parliament, comprising a Legislative Council and a Legislative Assembly, constitute the legislature of Western Australia.

Executive government is based, as in the case of the Commonwealth and in other States, on the system which evolved in Great Britain in the eighteenth century and which is generally known as the 'Cabinet' system. The Cabinet consists of Ministers of the Crown chosen for the Ministry from members of Parliament belonging to the political party, or coalition of parties, which is in the majority in the Legislative Assembly. The Constitution requires that at least one of the Ministers be selected from members of the Legislative Council. In Western Australia, as in the other Australian States, the office of principal Minister is designated 'Premier'.

Since 1890, when responsible government was granted to Western Australia, there have been twenty-four separate Ministries as shown in the following table. No organised political party existed in the Colony until the formation of a Labour party in the 1890s. A Labour Ministry assumed office in 1904. As no previous Ministry had a specific party designation, the table has been annotated accordingly.

## MINISTRIES FROM 1890

Name of Premier	Political party	Date of assumption of office	Duration		
			Years	Months	Days
Forrest ....	(a)	1890—29 December ....	10	1	17
Throssell ....		1901—15 February ....	—	3	12
Leake ....		27 May ....	—	5	25
Morgans ....		21 November ....	—	1	2
Leake ....		23 December ....	—	6	8
James ....	Labour	1902—1 July ....	2	1	9
Daglish ....		1904—10 August ....	1	—	15
Rason ....		1905—25 August ....	—	8	12
Moore ....		1906—7 May ....	4	4	9
Wilson ....		1910—16 September ....	1	—	21
Scaddan ....		1911—7 October ....	4	9	20
Wilson ....		1916—27 July ....	—	11	1
Lefroy ....		1917—28 June ....	1	9	20
Colebatch ....		1919—17 April ....	—	1	—
Mitchell ....		17 May ....	4	10	30
Collier ....	Labour	1924—16 April ....	6	—	8
Mitchell ....		1930—24 April ....	3	—	—
Collier ....	Labour	1933—24 April ....	3	3	27
Willcock ....		1936—20 August ....	8	11	11
Wise ....	L.C.L. and C.P. (coalition)	1945—31 July ....	1	8	1
McLarty ....		1947—1 April ....	5	10	22
Hawke ....	Labour	1953—23 February ....	6	1	10
Brand ....		1959—2 April ....	11	11	1
Tonkin ....	Labour	1971—3 March ....	Still in office (b)		

C.P. = Country Party. L.C.L. = Liberal and Country League (c). Nat. = Nationalist.

(a) No specific party designation. (b) At 31 December 1972. (c) The name of the Party was changed to *The Liberal Party of Australia (Western Australian Division) Incorporated* on 15 July 1968.

## THE MINISTRY AT 31 DECEMBER 1972 (a)

Name of Minister	Title of office
Hon. John Trezise Tonkin, M.L.A. ....	Premier, Treasurer, and Minister for Cultural Affairs
Hon. Herbert Ernst Graham, M.L.A. ....	Deputy Premier and Minister for Development and Decentralisation, and the North-West
Hon. Thomas Daniel Evans, M.L.A. ....	Minister for Education, and Recreation, Attorney General, and Assistant to the Treasurer
Hon. William Francis Willesee, M.L.C. ....	Minister for Community Welfare, and Leader of the Government in the Legislative Council
Hon. John Dolan, M.L.C. ....	Minister for Police, Transport, and Railways
Hon. Donald George May, M.L.A. ....	Minister for Mines, Electricity, and Fuel
Hon. Colin John Jamieson, M.L.A. ....	Minister for Works, Water Supplies, and Traffic Safety
Hon. Hywel David Evans, B.A., M.L.A. ....	Minister for Lands, Agriculture, Immigration, and Forests
Hon. Ronald Davies, M.L.A. ....	Minister for Environmental Protection, Health, and Town Planning
Hon. Alexander Donald Taylor, B.A., M.L.A. ....	Minister for Labour, Prices Control, Consumer Protection, and Tourism
Hon. Robert Henry Claude Stubbs, M.L.C. ....	Minister for Local Government, and Chief Secretary
Hon. Arthur William Bickerton, M.L.A. ....	Minister for Housing, and Fisheries and Fauna

(a) The Ministry from 6 July 1972 following a redesignation and reallocation of portfolios.

The Constitution Act of 1889 provided for a Ministry of five members. This number was increased to six by an amendment to the Act in 1896, to eight by another amendment in 1927, and to ten by the *Acts Amendment (Increase in Number of Ministers of the Crown) Act, 1950*. The present Ministry consists of twelve members, as authorised by the *Constitution Acts Amendment Act, 1965*. The names of the Ministers and the portfolios held by them at 31 December 1972 are shown in the previous table.

The right to vote at parliamentary elections was extended to women by the *Constitution Acts Amendment Act, 1899* and membership of either House was provided for by the *Parliament (Qualification of Women) Act, 1920*. The first woman member of any Australian Parliament was Mrs Edith Dircksey Cowan, O.B.E., who was elected to the Legislative Assembly in March 1921 as member for West Perth. Mrs A. F. G. (later Dame Florence) Cardell-Oliver, M.L.A. for Subiaco, became the first woman Cabinet Minister in Australia when she joined the McLarty Ministry in 1947.

Payment of members was introduced in 1900 by a Payment of Members Act and a superannuation fund is established under the *Parliamentary Superannuation Act, 1970-1971*. The latter Act replaces the *Parliamentary Superannuation Act, 1948-1968* which came into operation on 1 January 1949.

### The Legislative Council

The Legislative Council consists of thirty members, each of the fifteen electoral provinces into which the State is divided being represented by two members. Election is for a term of six years and one-half of the members retire every three years.

The qualifications of a candidate for election to the Legislative Council are that he or she shall be at least twenty-one years of age, shall have resided in Western Australia for a minimum of one year, be a natural-born or naturalised British subject, and be enrolled, or qualified for enrolment, as an elector. No person may hold office as a Member of the Legislative Council and a Member of the Legislative Assembly at the same time. A Judge of the Supreme Court, the Sheriff of Western Australia, a minister of religion, an undischarged bankrupt, a debtor against whose estate there is a subsisting order in bankruptcy, or a person who has been attainted or convicted of treason or felony may not be elected to the Legislative Council. The qualifications for election as a Member of the Legislative Council are thus identical with those necessary for election as a Member of the Legislative Assembly.

The *Electoral Act, 1907-1970* requires that to qualify for enrolment as an elector a person shall be at least eighteen years of age, be a natural-born or naturalised British subject, shall have lived in the Commonwealth of Australia for six months continuously, and shall have lived in Western Australia for three months continuously and in the district for which he claims enrolment for a continuous period of one month immediately preceding the date of his claim. The qualifying age for enrolment as an elector for both the Legislative Council and the Legislative Assembly was reduced from twenty-one years of age to eighteen years of age under the provisions of the *Electoral Act Amendment Act (No. 2), 1970*. The Act operated for the first time at the conjoint election for the Legislative Council and the Legislative Assembly held on 20 February 1971. A person is disqualified from enrolment if he is of unsound mind, has been attainted of treason, has been convicted and is serving sentence for any offence punishable by imprisonment for one year or longer, is the holder of a temporary entry permit for the purposes of the *Migration Act 1958-1966* (Commonwealth) or is a prohibited immigrant under that Act. Enrolment is compulsory under the *Electoral Act Amendment Act, 1964* for all qualified persons except those who are aboriginal natives of Australia. Aborigines, although entitled to enrol, are not required to do so. Voting at elections is on the preferential system and, as provided by the foregoing Act, is compulsory for all enrolled persons.

Under the *Electoral Districts Act, 1947-1965*, the State is divided into a Metropolitan Area, consisting of five electoral provinces, an Agricultural, Mining and Pastoral Area with eight provinces, and a North-West-Murchison-Eyre Area with two provinces. The

names and boundaries of these fifteen electoral provinces, together with those of the fifty-one component electoral districts, were given in the 1969 issue of the Year Book. Changes in these boundaries were found necessary following an examination of the rolls prepared for the election of 20 February 1971 and, by proclamation dated 1 September 1971, Electoral Commissioners appointed under the Act were directed to wholly or partially redivide the State into electoral districts and electoral provinces in the manner provided by the Act.

The proposals of the Commissioners were published in an issue of the *Government Gazette of Western Australia* dated 21 January 1972. After considering objections submitted, the Commissioners made their final report on 1 June 1972. This report, together with maps showing the final recommendations of the Commissioners for the division of the State into electoral districts and for the adjustment of the boundaries of the electoral provinces, was published in the *Government Gazette of Western Australia* dated 14 June 1972. Details of the electoral districts, as finally determined, contained within each province appear in the *Appendix*.

The composition of the Legislative Council at 31 December 1972 is given in the following table.

#### MEMBERS OF THE LEGISLATIVE COUNCIL AT 31 DECEMBER 1972

Name	Political party	Electoral province
DUE TO RETIRE IN 1974 (a)		
Berry, Hon. G. W. ....	Lib.	Lower North
Claughton, Hon. R. F., B.A. ....	A.L.P.	North Metropolitan
Diver, Hon. L. C. ....	C.P.	Central
Dolan, Hon. John ....	A.L.P.	South-East Metropolitan
Hunt, Hon. J. L. ....	A.L.P.	North
Logan, Hon. L. A. ....	C.P.	Upper West
MacKinnon, Hon. G. C. ....	Lib.	Lower West
Medcalf, Hon. I. G., E.D., LL.B. ....	Lib.	Metropolitan
Stubbs, Hon. R. H. C. ....	A.L.P.	South-East
Thompson, Hon. Ronald ....	A.L.P.	South Metropolitan
Thompson, Hon. S. T. J. ....	C.P.	Lower Central
Thomson, Hon. J. McL. ....	C.P.	South
White, Hon. F. R. ....	C.P.	West
Willesee, Hon. W. F. ....	A.L.P.	North-East Metropolitan
Willmott, Hon. F. D. ....	Lib.	South-West
DUE TO RETIRE IN 1977 (a)		
Abbey, Hon. C. R. ....	Lib.	West
Baxter, Hon. N. E. ....	C.P.	Central
Dans, Hon. D. K. ....	A.L.P.	South Metropolitan
Dellar, Hon. S. J. ....	A.L.P.	Lower North
Elliott, Hon. Lyla D. ....	A.L.P.	North-East Metropolitan
Ferry, Hon. V. J., D.F.C. ....	Lib.	South-West
Griffith, Hon. A. F. ....	Lib.	North Metropolitan
Griffiths, Hon. C. E. ....	Lib.	South-East Metropolitan
Heitman, Hon. Jack ....	Lib.	Upper West
Leeson, Hon. R. T. ....	A.L.P.	South-East
McNeill, Hon. Neil, B.Sc. (Agric.) ....	Lib.	Lower West
Perry, Hon. T. O. ....	C.P.	Lower Central
Williams, Hon. R. J. L., B.A. ....	Lib.	Metropolitan
Withers, Hon. W. R. ....	Lib.	North
Wordsworth, Hon. D. J. ....	Lib.	South
A.L.P. = Australian Labor Party. C.P. = Country Party. Lib. = The Liberal Party of Australia (Western Australian Division) Incorporated.		

(a) Section 8 of the *Constitution Acts Amendment Act, 1899-1969* provides that a retiring member shall vacate his seat on 21 May in the year of retirement.

**The Legislative Assembly**

The following table shows the composition of the Legislative Assembly at 31 December 1972.

**MEMBERS OF THE LEGISLATIVE ASSEMBLY  
AT 31 DECEMBER 1972**

Name	Political party	Electoral district
Bateman, Thomas Henry ....	A.L.P.	Canning
Bertram, Ronald Edward, A.A.S.A. ....	A.L.P.	Mount Hawthorn
Bickerton, Hon. Arthur William ....	A.L.P.	Pilbara
Blaikie, Barry Roy ....	Lib.	Vasse
Brady, John Joseph ....	A.L.P.	Swan
Brand, Hon. Sir David, K.C.M.G. ....	Lib.	Greenough
Brown, James McMillan ....	A.L.P.	Merredin-Yilgarn
Bryce, Malcolm John, B.A. ....	A.L.P.	Ascot
Burke, Terence Joseph ....	A.L.P.	Perth
Cook, Wyndham Truran ....	A.L.P.	Albany
Court, Hon. Sir Charles, O.B.E. ....	Lib.	Nedlands
Coyne, Peter Joseph Aloysius ....	Lib.	Murchison-Eyre
Dadour, Dr Gabriel Thomas, M.B., B.S. ....	Lib.	Subiaco
Davies, Hon. Ronald ....	A.L.P.	Victoria Park
Evans, Hon. Hywel David, B.A. ....	A.L.P.	Warren
Evans, Hon. Thomas Daniel ....	A.L.P.	Kalgoorlie
Fletcher, Harry Arthur ....	A.L.P.	Fremantle
Gayfer, Harry Walter ....	C.P.	Avon
Graham, Hon. Herbert Ernst ....	A.L.P.	Balcatta
Grayden, William Leonard ....	Lib.	South Perth
Harman, John Joseph ....	A.L.P.	Maylands
Hartrey, Thomas Augustine, B.A., LL.B. ....	A.L.P.	Boulder-Dundas
Hutchinson, Hon. Ross, D.F.C. ....	Lib.	Cottesloe
Jamieson, Hon. Colin John ....	A.L.P.	Belmont
Jones, Thomas Henry ....	A.L.P.	Collie
Lapham, Stanley Edward, A.A.S.A. ....	A.L.P.	Karrinyup
Lewis, Alexander Ashley (a) ....	Lib.	Blackwood
Lewis, Hon. Edgar Henry Mead ....	C.P.	Moore
Manning, Iven Wemyss ....	Lib.	Wellington
Manning, William Allan, A.A.S.A., A.C.I.S. ....	C.P.	Narrogin
May, Hon. Donald George ....	A.L.P.	Clontarf
McIver, Kenneth Finlay ....	A.L.P.	Northam
McPharlin, Walter Raymond ....	C.P.	Mount Marshall
Mensaros, Andrew ....	Lib.	Floreat
Moiler, James ....	A.L.P.	Toodyay
Nalder, Hon. Crawford David ....	C.P.	Katanning
Norton, Daniel ....	A.L.P.	Gascoyne
O'Connor, Hon. Raymond James ....	Lib.	Mount Lawley
O'Neil, Hon. Desmond Henry ....	Lib.	East Melville
Ridge, Keith Alan ....	Lib.	Kimberley
Runciman, Ewart ....	Lib.	Murray
Rushton, Edgar Cyril ....	Lib.	Dale
Sewell, William Hawkins ....	A.L.P.	Geraldton
Stephens, Matthew Ernest ....	C.P.	Stirling
Taylor, Hon. Alexander Donald, B.A. ....	A.L.P.	Cockburn
Thompson, Ian David ....	Lib.	Darling Range
Tonkin, Arthur Raymond, B.A., Dip.Ed. ....	A.L.P.	Mirrabeeka
Tonkin, Hon. John Trezise ....	A.L.P.	Melville
Williams, Maurice Clifford ....	Lib.	Bunbury
Young, Raymond Laurence, F.C.A. ....	Lib.	Wembley
Young, William Gordon ....	C.P.	Roe

**SUMMARY**

Australian Labor Party (A.L.P.) ....	26
Country Party (C.P.) ....	8
The Liberal Party of Australia (Western Australian Division) Incorporated (Lib.) ....	17

(a) Elected at by-election held 16 December 1972 to fill vacancy caused by the resignation of Mr. D. D. Reid with effect from 26 October 1972.

There are fifty-one members of the Legislative Assembly, each member representing one of the fifty-one electoral districts into which the State is divided for the purpose. Members are elected for the duration of the Parliament, which is limited to three years.

A candidate for election must have resided in Western Australia for twelve months, be at least twenty-one years of age, be a natural-born or naturalised British subject, and be enrolled or qualified for enrolment, as an elector at Legislative Assembly elections. No person is qualified to be a Member of the Legislative Assembly if he is a member of the Legislative Council, a Judge of the Supreme Court, the Sheriff of Western Australia, a minister of religion, an undischarged bankrupt, a debtor against whose estate there is a subsisting order in bankruptcy, or has been attainted or convicted of treason or felony.

The qualifications and disqualifications applying to enrolment as an elector of the Legislative Assembly are the same as those prescribed for electors of the Legislative Council and enumerated in the preceding section *The Legislative Council*. As provided by the *Electoral Amendment Act, 1919* enrolment is compulsory for all qualified persons except those who are aboriginal natives of Australia. Aborigines, although entitled to enrol, are not required to do so. Voting at elections is on the preferential system and is compulsory for all enrolled persons as provided by the *Electoral Act Amendment Act, 1936*.

## ELECTIONS, ELECTORS ON ROLL AND VOTES RECORDED

### The Federal Parliament

General elections for the House of Representatives were held on 2 December 1972. The Australian Labor Party, led by E. G. Whitlam, Q.C., was elected to office with a majority of nine seats.

Elections for the Senate took place on 21 November 1970. As a result, Australian Labor Party representation in the Senate from 1 July 1971 was reduced from twenty-seven to twenty-six.

### FEDERAL PARLIAMENT—ELECTORS ON ROLL AND VOTES RECORDED

Electoral division	Electors enrolled	First preference votes recorded							Number of voters	
		Liberal Party of Australia	Australian Country Party	Australian Labor Party	Australian Democratic Labor Party	Australia Party	Independent and other	Informal	Total	Per cent of enrolled electors
HOUSE OF REPRESENTATIVES—GENERAL ELECTION OF 2 DECEMBER 1972										
Canning .....	64,865	15,873	15,461	23,398	1,558	1,436	1,301	2,335	61,362	94.60
Curtin .....	54,299	29,131	(a)	15,373	2,634	2,652	(a)	1,037	50,827	93.61
Forrest .....	51,020	15,304	9,723	20,843	1,483	455	(a)	1,143	48,951	95.94
Fremantle .....	62,769	22,637	(a)	32,803	1,764	(a)	786	1,515	59,505	94.80
Kalgoorlie .....	51,968	15,837	(a)	26,648	2,801	(a)	(a)	1,182	46,468	89.43
Moore .....	58,554	15,197	15,647	21,074	2,480	(a)	(a)	1,380	55,778	95.26
Perth .....	61,410	23,911	(a)	28,226	2,928	(a)	(a)	1,623	56,688	92.31
Stirling .....	69,511	30,446	(a)	29,686	4,243	(a)	(a)	1,414	65,789	94.65
Swan .....	62,844	24,724	(a)	28,347	2,163	1,075	921	1,699	58,929	93.77
Total, Western Australia	537,240	193,060	40,831	226,398	22,054	5,618	3,008	13,328	504,297	93.87

### SENATE—ELECTION OF 21 NOVEMBER 1970

Canning	....	....	....	56,597	9,090	12,044	19,216	2,425	 (a) 	6,348	4,056	53,179	93.96
Curtin				52,970	17,744	4,620	14,102	2,567		7,662	3,047	49,742	93.91
Forrest				50,292	12,232	7,030	19,153	2,685		3,814	3,205	48,119	95.68
Fremantle				60,135	12,165	5,434	26,286	2,202		6,164	3,920	56,171	93.41
Kalgoorlie				46,459	10,399	4,011	17,648	2,405		2,611	3,533	40,607	87.40
Moore				50,568	7,758	11,608	16,820	2,194		5,658	3,355	47,393	93.72
Perth	....			58,016	13,325	4,540	22,264	3,114		5,340	5,299	53,882	92.87
Stirling				61,704	14,658	4,915	24,126	3,032		6,757	4,152	57,640	93.41
Swan	....	....	....	60,325	12,519	5,214	25,033	3,314		5,590	4,595	56,265	93.26
Total, Western Australia				497,066	109,890	59,416	184,648	23,938	....	49,944	35,162	462,998	93.15

(a) No candidate.

LEGISLATIVE COUNCIL AND LEGISLATIVE ASSEMBLY  
CONJOINT ELECTION OF 20 FEBRUARY 1971

LEGISLATIVE COUNCIL

Electoral area (a) and province	Electors on roll			Electoral area (a) and province	Electors on roll		
	Males	Females	Persons		Males	Females	Persons
Metropolitan Area—				Agricultural, Mining and			
Metropolitan ....	30,365	35,579	65,944	Pastoral Area (con-			
North Metropolitan ....	38,529	41,354	79,883	tinued)—			
North-East Metropoli-				South-East ....	10,922	9,572	20,494
tan ....	37,610	39,209	76,819	South-West ....	9,989	9,426	19,415
South Metropolitan ....	30,897	31,664	62,561	Upper West ....	11,912	10,725	22,637
South-East Metropolitan	29,929	33,170	63,099	West ....	15,184	15,074	30,258
Total ....	167,330	180,976	348,306	Total ....	90,545	84,720	175,265
Agricultural, Mining and				North-West-Murchison-			
Pastoral Area—				Eyre Area—			
Central ....	9,951	8,960	18,911	Lower North ....	2,857	2,268	5,125
Lower Central ....	9,580	8,972	18,552	North ....	4,717	3,709	8,426
Lower West ....	11,336	11,192	22,528	Total ....	7,574	5,977	13,551
South ....	11,671	10,799	22,470	WHOLE STATE	265,449	271,673	537,122
Votes recorded—							
Formal ....							464,827
Informal ....							25,084
Total ....					(b)	(b)	489,911
Percentage of electors who voted (c) ....							91.21
Percentage of informal votes (d) ....							5.12

LEGISLATIVE ASSEMBLY

Electoral area (a) and district	Electors on roll			Electoral area (a) and district	Electors on roll		
	Males	Females	Persons		Males	Females	Persons
Metropolitan Area—				Agricultural, Mining and			
Ascot ....	7,053	7,219	14,272	Pastoral Area (con-			
Balcatta ....	9,993	10,276	20,269	tinued)—			
Belmont ....	7,259	7,483	14,742	Collie ....	2,992	2,811	5,803
Canning ....	10,526	10,820	21,346	Dale ....	6,224	6,196	12,420
Clontarf ....	7,054	8,087	15,141	Darling Range ....	5,049	5,236	10,285
Cockburn ....	9,949	9,817	19,766	Geraldton ....	3,890	3,814	7,704
Cottesloe ....	6,438	7,590	14,028	Greenough ....	3,904	3,302	7,206
East Melville ....	7,929	8,543	16,472	Kalgoorlie ....	3,417	3,064	6,481
Floreat ....	6,569	7,115	13,684	Katanning ....	3,225	3,005	6,230
Fremantle ....	6,270	6,328	12,598	Merredin-Yilgarn ....	4,036	3,407	7,443
Karrinyup ....	7,634	8,227	15,861	Moore ....	4,118	3,609	7,727
Maylands ....	6,196	6,920	13,116	Mount Marshall ....	3,441	2,975	6,416
Melville ....	6,749	6,976	13,725	Murray ....	4,162	4,108	8,270
Mirrabeeka ....	9,560	9,919	19,479	Narrogin ....	3,363	3,156	6,519
Mount Hawthorn ....	6,656	7,141	13,797	Northam ....	3,277	3,108	6,385
Mount Lawley ....	6,485	7,511	13,996	Roe ....	4,624	3,960	8,584
Nedlands ....	6,037	7,242	13,279	Stirling ....	3,823	3,467	7,290
Perth ....	5,599	5,974	11,573	Toodyay ....	3,911	3,642	7,553
South Perth ....	6,058	7,282	13,340	Vasse ....	3,304	3,357	6,661
Subiaco ....	5,722	7,658	13,380	Warren ....	3,529	3,144	6,673
Swan ....	7,542	7,668	15,210	Wellington ....	3,504	3,331	6,835
Victoria Park ....	6,291	6,981	13,272	Total ....	90,545	84,720	175,265
Wembley ....	7,761	8,199	15,960	North-West-Murchison-			
Total ....	167,330	180,976	348,306	Eyre Area—			
Agricultural, Mining and				Gascoyne ....	1,775	1,510	3,285
Pastoral Area—				Kimberley ....	1,774	1,374	3,148
Albany ....	3,224	3,372	6,596	Murchison-Eyre ....	1,082	758	1,840
Avon ....	3,233	2,877	6,110	Pilbara ....	2,943	2,335	5,278
Blackwood ....	3,156	2,925	6,081	Total ....	7,574	5,977	13,551
Boulder-Dundas ....	3,469	3,101	6,570	WHOLE STATE	265,449	271,673	537,122
Bunbury ....	3,670	3,753	7,423				
Votes recorded—							
Formal ....							471,570
Informal ....							18,897
Total ....					(b)	(b)	490,467
Percentage of electors who voted (c) ....							91.31
Percentage of informal votes (d) ....							3.85

(a) As defined in the Electoral Districts Act, 1947-1965. (b) Not available. (c) Proportion of votes recorded to electors on roll. (d) Proportion of informal votes to total votes recorded.

### The State Parliament

At the conjoint election for the Legislative Council and the Legislative Assembly which was held on 20 February 1971, the Australian Labor Party, led by the Honourable J. T. Tonkin, was elected to office with a majority in the Legislative Assembly of one seat. The strength of the Australian Labor Party in the Legislative Council, where it was in a minority, remained unchanged with ten seats.

The table on page 109 shows the number of electors enrolled in each Province and in each District. The numbers of formal and informal votes recorded throughout the State at the election are also shown.

It will be seen from the table that the number of electors enrolled in each District in the Metropolitan Area was approximately twice the number in each District in the Agricultural, Mining and Pastoral Area. This is accounted for by a requirement of the *Electoral Districts Act, 1947-1965* that the Electoral Commissioners, in determining the quota of electors for each District, should reckon every two electors in the Metropolitan Area as one elector, at the same time giving full representation to each elector in the Agricultural, Mining and Pastoral Area. The number of Districts in the North-West-Murchison-Eyre Area was fixed by the Act at four.

## LEGISLATION DURING 1971

### The Federal Parliament

The legislative enactments of the Commonwealth Parliament in 1971 are listed in summarised form on pages 76-82 of the *Official Year Book of the Commonwealth of Australia*, No. 58-1972.

### The State Parliament

During the first session of the twenty-seventh Parliament, which lasted from 15 July to 7 October 1971, and the second session, which lasted from 16 November to 10 December 1971, the Western Australian legislature enacted seventy-one Public Statutes and, in addition, dealt with eighteen Bills which were introduced but not passed.

The titles and a brief summary of the Acts passed by the State Parliament during 1971 (*i.e.* those enacted during the periods specified in the previous paragraph) are given below. The full text of the legislation enacted is contained in the volumes of *The Acts of the Parliament of Western Australia*, to which reference should be made if further details are required.

## ACTS PASSED DURING 1971

No. of Act	Short title and summary
28	Abattoirs Act Amendment Act. Amends section 15 of the <i>Abattoirs Act, 1909-1970</i> .
18	Administration Act Amendment Act. Amends the <i>Administration Act, 1903-1970</i> .
40	Administration Act Amendment Act (No. 2). Repeals section 138 of the <i>Administration Act, 1903-1971</i> .
24	Adoption of Children Act Amendment Act. Amends the <i>Adoption of Children Act, 1896-1964</i> .
67	Alumina Refinery (Mitchell Plateau) Agreement Act. Ratifies an agreement between the State and Amax Bauxite Corporation relating to the establishment of a refinery to produce alumina, and provides for carrying the agreement into effect. Repeals the <i>Alumina Refinery (Mitchell Plateau) Agreement Act, 1969</i> .
53	Alumina Refinery (Upper Swan) Agreement Act. Authorises the execution on behalf of the State of an agreement with Hancock Prospecting Pty. Limited, Wright Prospecting Pty. Limited, Metals Miniere Limited and Pacminex Pty. Limited relating to the establishment at Upper Swan of a refining plant to treat bauxite to produce alumina.
7	Anatomy Act Amendment Act. Repeals and re-enacts section 20 of the <i>Anatomy Act, 1930-1946</i> .
69	Appropriation Act (Consolidated Revenue Fund).
71	Appropriation Act (General Loan Fund).

ACTS PASSED DURING 1971—*continued*

No. of Act	Short title and summary
32	Bills of Sale Act Amendment Act. Amends the thirteenth schedule to the <i>Bills of Sale Act, 1899–1966</i> .
4	Bulk Handling Act Amendment Act. Adds Part VA to the <i>Bulk Handling Act, 1967</i> .
45	Cement Works (Cockburn Cement Limited) Agreement Act. Ratifies an agreement between the State, the Minister for Works, the Fremantle Port Authority and Cockburn Cement Limited, relating to cement and clinker manufacturing operations.
23	Censorship of Films Act Amendment Act. Amends the <i>Censorship of Films Act, 1947</i> .
52	Child Welfare Act Amendment Act. Amends section 20 of the <i>Child Welfare Act, 1947–1970</i> .
5	Clean Air Act Amendment Act. Amends the <i>Clean Air Act, 1964–1967</i> .
35	Coal Mine Workers (Pensions) Act Amendment Act. Amends the <i>Coal Mine Workers (Pensions) Act, 1943–1970</i> .
38	Commonwealth Places (Administration of Laws) Act Amendment Act. Amends section 15 of the <i>Commonwealth Places (Administration of Laws) Act, 1970</i> .
31	Companies Act Amendment Act. Amends the second schedule to the <i>Companies Act, 1961–1970</i> .
68	Consumer Protection Act. Establishes a Consumer Affairs Council and a Consumer Protection Bureau. Provides for the appointment of a Commissioner for Consumer Protection.
37	Dried Fruits Act Amendment Act. Amends section 16 of the <i>Dried Fruits Act, 1947–1968</i> .
63	Environmental Protection Act. Provides for the establishment of an Environmental Protection Authority, a Department of Environmental Protection and an Environmental Protection Council for the prevention and control of environmental pollution and for the protection and enhancement of the environment. Repeals the <i>Physical Environment Protection Act, 1970</i> .
41	Evidence Act Amendment Act. Repeals section 106A of the <i>Evidence Act, 1906–1967</i> .
12	Firearms and Guns Act Amendment Act. Repeals subsection 3 of section 8 of the <i>Firearms and Guns Act, 1931–1969</i> .
27	Fire Brigades Act Amendment Act. Amends the <i>Fire Brigades Act, 1942–1966</i> .
47	Fisheries Act Amendment Act. Amends subsection 3 of section 35L of the <i>Fisheries Act, 1905–1969</i> .
21	Government Railways Act Amendment Act. Amends section 24 of the <i>Government Railways Act, 1904–1970</i> .
9	Industrial Arbitration Act Amendment Act. Amends subsection 1 of section 44 of the <i>Industrial Arbitration Act, 1912–1968</i> .
62	Industrial Arbitration Act Amendment Act (No. 2). Repeals subsection 2 of section 146 of the <i>Industrial Arbitration Act, 1912–1971</i> .
54	Industrial Lands Development Authority Act Amendment Act. Amends section 6 of the <i>Industrial Lands Development Authority Act, 1966–1970</i> .
58	Iron Ore (Mount Goldsworthy) Agreement Act Amendment Act. Amends the <i>Iron Ore (Mount Goldsworthy) Agreement Act, 1964</i> .
48	Justices Act Amendment Act. Amends sections 82, 135 and 167 of the <i>Justices Act, 1902–1968</i> .
55	Land Act Amendment Act. Amends the <i>Land Act, 1933–1969</i> .
60	Land Act Amendment Act (No. 2). Amends section 117A of the <i>Land Act, 1933–1969</i> .
13	Land Tax Assessment Act Amendment Act. Amends sections 8B and 10 of the <i>Land Tax Assessment Act, 1907–1970</i> .
36	Legal Practitioners Act Amendment Act. Amends the <i>Legal Practitioners Act, 1893–1970</i> .
70	Loan Act. Authorises the raising of a sum of \$74,200,000 by loan for the construction of certain public works and for other purposes.
66	Local Government Act Amendment Act. Amends section 245A of the <i>Local Government Act, 1960–1970</i> .
61	Marketing of Lamb Act. Establishes the Western Australian Lamb Marketing Board and provides for the marketing of lamb by the Board.
65	Marketing of Linseed Act Amendment Act. Amends the <i>Marketing of Linseed Act, 1969</i> to provide for the marketing of other seeds and changes the title of the principal Act to the <i>Seed Marketing Act, 1969–1971</i> .
42	Milk Act Amendment Act. Amends section 30 of the <i>Milk Act, 1946–1970</i> .
2	Mining Act Amendment Act. Adds section 277A to the <i>Mining Act, 1904–1970</i> .
56	Mining Act Amendment Act (No. 2). Amends section 54 of the <i>Mining Act, 1904–1971</i> .
44	Motor Vehicle (Third Party Insurance) Act Amendment Act. Amends the <i>Motor Vehicle (Third Party Insurance) Act, 1943–1970</i> .
30	Motor Vehicle (Third Party Insurance Surcharge) Act Amendment Act. Amends subsection 1 of section 3 of the <i>Motor Vehicle (Third Party Insurance Surcharge) Act, 1962–1968</i> .
26	Natives (Citizenship Rights) Act Repeal Act. Repeals the <i>Natives (Citizenship Rights) Act, 1944–1964</i> .

ACTS PASSED DURING 1971—*continued*

No. of Act	Short title and summary
15	Noxious Weeds Act Amendment Act. Amends section 48A of the <i>Noxious Weeds Act, 1950-1970</i> .
16	Offenders Probation and Parole Act Amendment Act. Amends section 34 of the <i>Offenders Probation and Parole Act, 1963-1970</i> .
64	Parliamentary Commissioner Act. Provides for the appointment of a Parliamentary Commissioner for Administrative Investigations for the investigation of administrative action taken by or on behalf of certain government departments and other authorities.
22	Parliamentary Superannuation Act Amendment Act. Amends section 28 of the <i>Parliamentary Superannuation Act, 1970</i> .
11	Pay-roll Tax Act. Imposes pay-roll tax pursuant to the <i>Pay-roll Tax Assessment Act, 1971</i> at the rate of 3.5 per cent of the taxable wages.
10	Pay-roll Tax Assessment Act. Complements the <i>Pay-roll Tax Act, 1971</i> . Provides for the assessment and collection of a tax upon wages paid by employers and specifies those wages which are exempt from the tax.
59	Poseidon Nickel Agreement Act. Ratifies an agreement between the State and Poseidon Limited relating to the mining of nickel ore at Mount Windarra.
43	Prisons Act Amendment Act. Amends the <i>Prisons Act, 1903-1969</i> to change the title Comptroller General of Prisons to Director of the Department of Corrections.
19	Property Law Act Amendment Act. Amends section 3 and adds section 31A to the <i>Property Law Act, 1969</i> .
25	Property Law Act Amendment Act (No. 2). Amends section 102 of the <i>Property Law Act, 1969</i> .
51	Railway Standardisation Agreement Act Amendment Act. Amends the <i>Railway Standardisation Agreement Act, 1961</i> .
50	Reserves Act. Varies the provisions relating to certain reserves and other land.
46	Rights in Water and Irrigation Act Amendment Act. Amends the <i>Rights in Water and Irrigation Act, 1914-1964</i> .
17	Rural Reconstruction Scheme Act. Approves and gives effect to an agreement between the Commonwealth and the State providing for the establishment and operation of a scheme of financial assistance to persons engaged in rural industries in the State.
6	Snowy Mountains Engineering Corporation Enabling Act. Complements the <i>Snowy Mountains Engineering Corporation Act 1970</i> (Commonwealth). Authorises the exercise of the functions of the Corporation in this State, subject to the approval of the Minister.
3	Stamp Act Amendment Act. Amends sections 16, 32 and 112P of the <i>Stamp Act, 1921-1970</i> .
29	Stamp Act Amendment Act (No. 2). Amends the <i>Stamp Act, 1921-1971</i> .
8	State Electricity Commission Act Amendment Act. Amends section 49 of the <i>State Electricity Commission Act, 1945-1966</i> .
57	Suitors' Fund Act Amendment Act. Amends the <i>Suitors' Fund Act, 1964-1969</i> .
1	Supply Act. Grants supply of \$210 million for the year 1971-72.
39	Supreme Court Act Amendment Act. Amends the <i>Supreme Court Act, 1935-1964</i> .
33	Traffic Act Amendment Act. Repeals section 27A and amends subsection 2 of section 47 of the <i>Traffic Act, 1919-1970</i> .
34	Traffic Act Amendment Act (No. 2). Amends various provisions of the <i>Traffic Act, 1919-1970</i> .
14	Vermin Act Amendment Act. Amends section 103 of the <i>Vermin Act, 1918-1970</i> .
49	Western Australian Institute of Technology Act Amendment Act. Amends the <i>Western Australian Institute of Technology Act, 1966-1970</i> .
20	Wills Act Amendment Act. Adds Part IX—Illegitimacy to the <i>Wills Act, 1970</i> .

## GOVERNMENT ADMINISTRATION

The Public Service of Western Australia operates under the *Public Service Act, 1904-1972* and consists of a number of branches of the Service established as Departments in accordance with regulations made under the Act. The departments are Aboriginal Affairs Planning Authority, Agriculture, Audit, Chief Secretary's, Community Welfare, Crown Law, Development and Decentralisation, Education, Electoral, Environmental Protection, Fisheries and Fauna, Forests, Labour, Lands and Surveys, Local Government, Medical and Health Services, Mental Health Services, Metropolitan Water Supply, Sewerage, and Drainage Board, Mines, Police, Premier's, Public Health, Public Service Board, Public Works, State Government Insurance Office, State Housing Commission, State Taxation, Town Planning, Treasury and the Workers' Compensation Board.

A number of other State Departments and Statutory Authorities, referred to as Instrumentalities, function under separate Acts although they very largely follow the conditions prescribed in the Public Service Act.

Establishment, abolition or re-organisation of departments are subject to the approval of the Governor.

A brief summary of the functions of each of the departments and principal State Instrumentalities established at 31 December 1971 was given in the previous issue of the Year Book.

## HISTORY OF STATE GOVERNMENT DEPARTMENTS

A short but reasonably comprehensive history of State Government Departments was commenced in the 1971 issue of the Year Book. The following article, the third in the series, presents the historical development of the Police Department, one of the oldest of the State Departments with an origin dating back to the very earliest days of settlement. Departments dealt with in previous articles were the Public Works Department and the Education Department.

### POLICE DEPARTMENT

The Police Department of Western Australia may be said to date from the origin of the Swan River Colony itself, for a Proclamation read by Captain Stirling at Fremantle on 19 June 1829 contains the words:

‘for the ends of justice and the preservation of peace I may hereafter see occasion to nominate and to appoint a sheriff of the territory having under his direction responsible individuals filling the offices of high constable, constables, bailiffs and surveyors of highways’.

Sheriffs now come under the jurisdiction of the Crown Law Department, though they retain a close connection with the Police, and ‘surveyors of highways’—unless the Police Traffic Branch can be considered in this category—are no longer primarily concerned with ‘the preservation of peace’. However, constables of varying grades still remain the core of the Western Australian Police Force. There are now well over 1,200 of them and, though they have lost to other Departments many of the official functions which they have from time to time in the State’s history fulfilled, the immensity of their collective beat as well as the increasing complexity of modern life has ensured that their duties remain wide, varied and sometimes unexpected. In most country areas the local policeman not only still acts as Bailiff to the Sheriff and to the Local Court, but he is also frequently to be found doubling as Clerk of Petty Sessions or other Courts, Registrar of Births, Deaths and Marriages, Agent for the Public Trustee and for Social Services and Employment, Gaoler, Postal Vote Officer, Mining Registrar, Collector of Statistics, Treasury Paymaster and even, on occasions, official undertaker. In between these varied activities and the more conventionally recognised law enforcement duties of a policeman, he is also protector of the poor and needy in general and may spend his evenings running the local Police and Citizens’ Youth Club.

The Western Australian Police numbered 1,686 all ranks at 30 June 1972, backed up by 385 Public Servants and an imposing array of vehicles and scientific equipment, and headed by a career policeman as Commissioner. It was not always thus. The first constables were part-time policemen recruited by the Magistrates appointed by Captain Stirling, and were paid particular rates for specific tasks as compensation for disruption to their normal occupations. The service of a summons, for instance, gained a payment of one shilling, and the apprehension of an offender under warrant, 2s 6d. For the conveyance of a prisoner to his place of confinement, and for his own maintenance en route, the constable was reimbursed his expenses, stated on oath before a Justice, with an additional 7s 0d a day for his trouble and loss of time. For executing a warrant of distress he got 2s 6d; for attending at Quarter or Special Sessions as Peace Officer, 7s 0d a day, and ‘to constable’s man for keeping possession’ went ‘per day, 3s 6d’. The six Magistrates who signed the first ‘departmental’ report to the Lieutenant-Governor in 1830

had no doubt that the constables in question would 'be much stimulated to a zealous discharge of their duties by the prospect of extraordinary reward held out by Your Excellency'.

Despite this hope, the lot of the embryonic police force in the new Colony was not for the first few years a happy one. There were but five of these part-time constables at Perth, four at Fremantle, one at Canning, four at Swan and one at Albany, and 'crime' of a nature and scope unexpectedly difficult to combat was rife. The main problem concerned the local natives who, though then technically subjects of His Majesty, knew little and cared less about his laws, especially those relating to property.

There were times in the 1830s when it was even feared that the Colony must be abandoned, so serious were the depredations made on flocks and herds by the Aborigines. Faced with this threat the settlers resorted to their firearms to counter it, and some were speared in return. By the middle of 1832 it was apparent to Stirling, as he wrote to Lord Glenelg, the Secretary of State,

'that unless a police force be established and maintained for the purpose of protecting, controlling, managing and gradually civilizing the aboriginal race of this country, there will be a fearful struggle between the invaders and the invaded, which will not cease until the extermination of the latter be accomplished to the discredit of the British race'.

His solution was a mounted gendarmerie composed of military, private citizens and a few natives, whilst at the same time issuing a Proclamation against settlers 'behaving in a fraudulent, cruel or felonious manner towards the aboriginal race'. Despite these humane intentions, the new force, whilst engaged on what amounted to a punitive expedition in the Murray District, became involved on 28 October 1834 in the 'Battle of Pinjarra'. As a result of this Captain Ellis, the recently appointed Superintendent of Police, died of a spear wound in the head and consequent fall from his horse, thus becoming the first of over forty Western Australian policemen to lose their lives in the course of duty.

The mounted police force was not, however, popular with the settlers on the grounds, firstly, that it was not efficient and, secondly, that they objected to paying for a function which they considered, perhaps with some justification, should be fulfilled by the military already supplied for the defence of the Colony. Their protests reached a climax in a memorial to Lord Glenelg late in 1836 stressing their preference for a local yeomanry force. As a result of this and other remonstrances the Police Vote was reduced in 1835 and again in 1837. The first gazetted constable at Fremantle was appointed in 1837, the same year that Albany was given a second one, who also kept the gaol there. Perth had to wait until 1840 before it acquired its first policeman on a fixed wage, one John Chipper, who was paid £20 per year. An account covering the wages of five constables for the quarter ending 31 March 1842 totals only £26 6s 8d.

The small police establishment in 1849 included 'Protectors of natives' in Perth, York and Albany but despite this, however, the pattern of crime had changed. The policeman in Perth was no longer in imminent danger of being speared. An Ordinance of 1849 found it 'expedient to make provision for the maintenance of public peace and good order, and for the prosecution of certain offences' and among the 'certain offences' referred to in the Ordinance for which he could apprehend without a warrant were indecent exposure, the singing of profane or obscene songs, the fixing of placards, defacing of walls or removal of gates, the discharge of firearms or fireworks in the streets, and failure to observe the Lord's Day. He was also to prevent negligent riding or driving of cattle, the ill-treatment of animals, or their being left as corpses on the highways or in rivers, and the indiscriminant blasting of rocks and trees.

The native problem was no sooner within control when the Western Australian Police were confronted with a new one arising from an Order-in-Council published in October 1849 enabling British convicts to be transported to the Colony. The real problem for the Police during the convict era lay not in any great increase in crime perpetrated by those convicts transported to Western Australia, but in the tremendous additional task of registration and supervision of ticket-of-leave men which the system entailed. In 1854, for

instance, there were 2,189 such men in the Colony, as well as 376 'Conditional Pardons' and, since these were required to report regularly, station staff had to be available to register them. Escort duty also took up a great deal of a policeman's time. By 1870, two years after transportation ceased, there were still 1,244 ticket-of-leave men to be supervised by a police force of only 146 men, of whom thirty-eight were Aborigines.

Needless to say the earlier settlers were almost as apprehensive of the new arrivals as they had been of the natives, and just as disparaging of the arrangements made for law and order. A protest meeting held at the Freemason's Hotel in Fremantle led to the 1853 Police Act, which was followed by another in 1859 and a consolidating Act in 1861, the Regulations of which came into force in 1863 and may be said to have established the force as a fully organised one under a Commissioner of Police.

An applicant for the police in those days had to be under forty years of age, able to read and write, physically fit and 'generally intelligent'. Though by 1865 a foot constable was paid £70-£80 per year, the life was not an easy one. He was never to appear in public except in uniform and he was required to work a seven-day week and, in fact, to be on call twenty-four hours a day. Leave of any sort was extremely hard to procure, an instance being on record of an officer applying for two days' absence in which to get married. It was not until the early years of the reign of King George V that annual leave was awarded as a right. It is, therefore, perhaps not surprising that, certainly up to the turn of the century, the monthly pay day was an exciting event in Perth, marked by a parade with band.

A Police Benevolent Fund, in the hands of the Commissioner and financed largely from fines, was established as early as 1866 and in 1912 consent was given to the formation in Western Australia of a Police Association, which later developed into a full industrial union, making its first approach to the Arbitration Court in 1928.

The 1870s saw several interesting developments and some new tasks for the Police. A Criminal Investigation Bureau was set up on 3 October 1873 under Sergeant J. Rowe, but its origins can be traced back to 1854 when two detectives arrived from England. A Police Gazette was first issued on 1 March 1876 and has appeared weekly ever since. The versatility of the force was displayed when, in November 1878, the Police not only took over the bi-monthly carriage of mail between Perth and the Central and Southern Districts, but were able to reduce the time taken between Perth and Albany from seventy-five to sixty hours. For many years the Police also supervised weights and measures and the sale of bread, both now the responsibility of the Department of Labour and, in addition, the purveying of meat, now under the Public Health Department.

The Police Department of today is administered under the Police Act of 1892, as amended from time to time, though it was not until 1919 that a specific Police Minister was appointed. The Act was passed in time for the additional work which the gold rush days were to throw upon the Police. Since then the force has grown steadily and new and specialised branches have been added. The first Fingerprint Bureau was started in October 1902 in makeshift premises at Fremantle Prison where it remained, run on a part-time basis, until 1930 when a full scientific unit was established as part of the Criminal Investigation Bureau in its James Street, Perth, headquarters. For its first fifteen years this was run in conjunction with the Radio Branch, now a separate unit. The first police-woman was appointed in 1921 and this branch, which now numbers over thirty, has since done work of inestimable value in connection with the social welfare task of the Police.

The Police Department has doubled its strength in the last twenty years and there is now one policeman in the State to approximately every 650 inhabitants. Though specialisation is a natural trend, the uniformed constable remains the essence of the force and it is in this role that every Western Australian policeman receives his basic training—a four months' intensive and demanding course at a proper Police Academy. From here he will probably spend some years as an ordinary uniformed constable before, perhaps, going into one of the branches—Criminal Investigation Bureau, Traffic, Liquor and Gaming, Firearms, Transport, Radio, Ballistics, Gold Stealing Detection and many others. He may become a Water Policeman or be trained in Underwater Recovery or Air-Sea Rescue

work. If his talents lie in that direction, he may join the Police Lecturing Staff, or the Public Relations Section formed in 1966. In any event the object of his work will always remain the same as that envisaged by Captain Stirling in 1829—‘the ends of justice and the preservation of peace’.

### THE JUDICATURE

The two major factors in the development of the Australian legal system have been its British origin and the Commonwealth Constitution of 1900. This statute, an Act of the Imperial Parliament in London, limited the legislative power of State Parliaments in some respects and created a federal legislature. Since 1942, however, the Imperial Parliament can legislate for Australia only at Australia's request. The sources of Australian law of today are, therefore, found in Commonwealth and State legislation, in some Imperial legislation, and in the common law. Independence of the judiciary is an essential part of the Australian legal system.

The following list shows members of the Western Australian judiciary at 31 December 1972.

#### *Supreme Court of Western Australia*

Chief Justice ....	....	....	The Honourable Sir Lawrence Jackson, K.C.M.G.
Senior Puisne Judge ....	....	....	The Honourable J. E. Virtue
Puisne Judges	....	....	The Honourable John Hale
			The Honourable F. T. P. Burt
			The Honourable J. M. Lavan
			The Honourable J. L. C. Wickham
			The Honourable A. R. A. Wallace

#### *The District Court of Western Australia*

Chairman of Judges ....	....	....	His Honour Judge S. H. Good
Judges ....	....	....	His Honour Judge D. C. Heenan
			His Honour Judge R. E. Jones
			His Honour Judge W. P. Pidgeon
			His Honour Judge A. E. Kay

Particulars of these and other Western Australian courts, and Commonwealth courts appear in Chapter V, Part 6 and Chapter X, Part 1.

### OVERSEAS REPRESENTATION IN WESTERN AUSTRALIA

At 31 December 1972 there were nineteen countries represented in Western Australia by a consular agent, vice-consul, consul, consul-general, or deputy high commissioner, as follows.

Austria—R. Holmes, Honorary Consul, 21 Howard Street, Perth 6000.

Belgium—J. G. Manford, Honorary Consul, T. and G. Building, 37-9 St George's Terrace, Perth 6000.

Denmark—J. C. Garnsworthy, Honorary Consul, 25 Henry Street, Fremantle 6160.

Finland—R. C. Matiske, Honorary Consul, 237 Murray Street, Perth 6000.

France—Honorary Consular Agent (vacant).

Germany, Federal Republic of—P. R. Adams, Honorary Consul, 524 Hay Street, Perth 6000.

Greece—C. P. Belegris, Consul, 132 Mounts Bay Road, Perth 6000.

Guatemala—P. Smetana, Honorary Consul, 28 Warralong Crescent, Mount Lawley 6050.

Italy—Consul (vacant).

Japan—T. Kawabata, Consul-General, 36 King's Park Road, West Perth 6005.

Netherlands—M. van Oordt, Consul, Council House, 27-9 St George's Terrace, Perth 6000.

Norway—E. A. M. Wright, Honorary Consul, Lombard House, 251 Adelaide Terrace, Perth 6000.

Philippines—G. V. Mummery, Honorary Consul, 1095 Hay Street, Perth 6000.

Portugal—C. G. Dudley, Honorary Vice-Consul, Mt Newman House, 200 St George's Terrace, Perth 6000.

Sweden—H. Morgan, Honorary Consul, Market House, 849-51 Wellington Street, Perth 6000.

Switzerland—R. H. Abplanalp, Honorary Vice-Consul, 6 London Street, Mount Hawthorn 6016.

United Kingdom—A. H. Birch, C.M.G., O.B.E., Deputy High Commissioner, A.N.Z. House, 84 St George's Terrace, Perth 6000.

United States of America—W. H. Bruns, Consul, M.L.C. Building, 171 St George's Terrace, Perth 6000.

Yugoslavia—P. Mihailovski, Consul, 24 Colin Street, West Perth 6005.

In addition, the Grand Duchy of Luxembourg is represented in Western Australia by the Consul for Belgium.

The New Zealand Trade Commissioner in Western Australia is A. F. Jacobsen, A.F.C., St George's Court, 16 St George's Terrace, Perth 6000.

#### STATE REPRESENTATION OVERSEAS AND IN OTHER STATES

Western Australia has been represented in the United Kingdom by an Agent General since 1892, the first appointment to the post being that of Sir Malcolm Fraser. An Office is maintained at Western Australia House, 115 Strand, London, W.C.2. Its functions include the representation of all government departments which have business in Britain and Europe, the purchase of government stores and equipment, the attraction of migrants, the encouragement of overseas private investment in Western Australia, and the provision of various types of assistance to visitors from Western Australia. In addition, the Office acts as agent for the State Treasury and as a receiving agency for The Rural and Industries Bank of Western Australia. Western Australia's European Public Relations Office also operates from Western Australia House. The Agent General for Western Australia, the Honourable W. S. Bovell, is the personal representative in Britain of the State Premier.

Branches of the Western Australian Tourist Development Authority have been established in New South Wales at 92 Pitt Street, Sydney, in Victoria at 2 Royal Arcade, Melbourne, and in South Australia at 34 King William Street, Adelaide. In the Northern Territory, the agent for the Authority is located at Western Australia House, Cavenagh Street, Darwin.

#### THE LOCAL GOVERNMENT SYSTEM

The function of local government in Western Australia is performed by a number of Councils (or, in special circumstances, by Commissioners appointed by the Governor) exercising powers conferred by the Parliament of the State. Each of the Councils consists of members elected by a local community and is responsible for the provision of many of the services necessary for the organisation and welfare of the community which it represents.

As early as 1838 an Act providing a measure of local government was passed and under its provisions the management and control of the town of Perth was vested in a body of trustees. The first elected Town Trust was constituted at Perth in 1842 under an Act of 1841 for the 'Improvement of Towns in Western Australia'. The Trust was dissolved in 1858 and replaced by a City Council, the town of Perth having been constituted a city when it became the seat of a Bishop in 1856.

Legislation was enacted in 1871 establishing Municipalities and Road Boards throughout the Colony. The existing Statute regulating the operations of the local authorities is the *Local Government Act, 1960-1972*, which is administered through a Department of Local Government by the Minister for Local Government. This Act consolidates the law relating to local government in Western Australia, and by its provisions the Municipal Corporations Act, the Road Districts Act and a number of other, less important, Acts were repealed. The legislation came into operation on 1 July 1961 and from that date new designations were applied to many local government districts, bodies and offices. Former Municipalities, other than cities, became known as 'Towns' and Road Districts were renamed 'Shires'. Municipalities which already had city status remained 'Cities'. The executive body in each local government district became a 'Council', City Councils and Town Councils being presided over by a Mayor, and Shire Councils by a President. The chief non-elective executive office of a City or a Town is that of 'Town Clerk' and of a Shire, that of 'Shire Clerk'.

At 31 December 1972 there were 7 Cities, 12 Towns and 119 Shires in Western Australia.

### Local Government Districts

The only unincorporated area in mainland Western Australia is King's Park, a public reserve of almost one thousand acres in Perth, all other land being incorporated within the district of a City, Town or Shire.

On presentation of a petition signed by a prescribed minimum number of ratepayers, the number varying with the subject matter, the Governor may by Order constitute any part of the State as a Town; constitute any unincorporated area as a Shire; constitute as a new Shire any part of an existing Shire; divide a Shire into two or more Shires; sever portion of a district and annex the portion to an adjoining district, or constitute the portion as a new Town or Shire; annex to a district any adjacent unincorporated areas; divide a district into wards; or abolish a district and dissolve the local governing authority.

The Act establishes a Local Government Boundaries Commission of three members, one being an officer of the Department of Local Government, who is Chairman of the Commission. The other members must be persons having experience in local government and nominated by associations of local government authorities. The Minister may refer to the Commission any question concerning the constitution or alteration of the constitution of local government districts. Every case where authorities are unable to agree on a matter of amalgamation or severance of territory must be referred to the Commission.

On the petition of the local authority concerned, the Governor may by Order declare to be a City any district which satisfies certain specified requirements. These requirements are that, during the three years immediately preceding the declaration, it shall have maintained a population of not less than 30,000 persons if situated in the metropolitan area as declared for the purposes of the Act, or not less than 20,000 persons if situated outside that area; and have maintained a gross revenue of \$200,000 for each of the three years. In addition the district must be clearly distinguishable as a centre of population having a distinct civic centre with adequate halls and cultural facilities, and must have sufficient residential, commercial and industrial centres to justify its declaration as a separate city. The seven Cities in Western Australia are all situated in the Perth Statistical Division and five of them had been granted city status before the requirements imposed by the present legislation became operative. These five Cities are Perth (proclaimed in 1856), Fremantle (1929), Subiaco (1952), Nedlands (1959), and South Perth (1959). The Town of Melville was declared a city on 3 May 1968 and the Shire of Perth was redesignated the City of Stirling with effect from 24 January 1971, having satisfied the requirements for city status provided by the Local Government Act.

The boundaries of local government districts as they existed at 31 December 1970 are delineated on the map of the State at the back of the Year Book and the names and designations as at that date are listed on the pages immediately preceding the Index.

### **Constitution and Electoral Provisions**

The provisions of the Local Government Act relating to the composition of a City Council or a Town Council require that, in addition to the Mayor, there shall be, where the population is less than 1,000, six councillors; where the population is between 1,000 and 5,000, nine councillors; and if the population exceeds 5,000, twelve councillors if the district is not divided into wards but, where the district is divided into wards, three councillors for each ward. It is provided that a Shire Council shall consist of not less than five nor more than thirteen members, including the President.

Two methods of election to the office of Mayor or of President are prescribed. In the case of a City or Town, election is usually by a poll of the electors enrolled for the district. The President of a Shire is usually elected by the councillors from among their own number. It is provided, however, that a City or Town may adopt the system of election of the Mayor by the councillors, and that a Shire may conduct a poll of its electors for election to the office of President. The question of the adoption of the alternative system must, in all cases, be determined by submission to a poll of the electors, after delivery to the Mayor or the President of a resolution of a majority of the councillors or a petition signed by one-tenth of the electors, or by fifty electors, whichever is the greater. If not less than 15 per cent of eligible electors vote at the poll and a majority of the valid votes cast are in favour of the proposed alteration, the Governor may order its adoption.

The Act constitutes the office of Deputy Mayor, in the case of a City or a Town, and of Deputy President in the case of a Shire, and requires that the Council shall elect one of the councillors to the office.

Provision is made for local government elections to be held on the fourth Saturday in May of each year but in specified circumstances the Governor may, by proclamation, appoint a Saturday in May, earlier than the fourth Saturday, to be the election date. Membership of a Council is elective in all cases, the qualified electors being adult natural-born or naturalised British subjects who own or occupy rateable land in the district. The preferential system of voting is used and representation is generally on the basis of wards into which the district may be divided. Plural voting applies, an elector being entitled, in accordance with the rateable value of the property owned or occupied by him, to a number of votes which may not, however, exceed four in elections for Mayor or President, or two in elections for councillor. The Act contains provisions enabling nominees of corporations owning land in a district to vote at local government elections and to be elected to membership of the Council. Subject to disqualification on certain specified grounds, all adult persons who are natural-born or naturalised British subjects owning or occupying rateable land within the district are eligible for election to the Council of the district whether as Mayor, President or councillor.

The term of office of a Mayor or a President is two years if elected by the electors of the district, or one year if elected by the Council. Councillors are elected for a term of three years, some of their number, varying with the total membership of the Council, retiring each year. On the expiration of their term of office, all members, including the Mayor and the President, are eligible for re-election if not subject to any of the disqualifications contained in the Act.

It is provided that, if in a particular district there should at any time be no Council or insufficient councillors to form a quorum, a Commissioner may be appointed to exercise all the powers of the local authority.

### **Functions of Local Authorities**

The functions and powers of local authorities are extremely diverse in character. They are prescribed in detail in the Local Government Act and some of the more important of them are referred to in later Chapters of the Year Book. For example, reference to local government activity in the fields of road construction and maintenance will be found in Chapter VI, Part 1 and Chapter IX, Part 3; the provision of parks, gardens and recreation grounds in Chapter V, Part 2; libraries in Chapter V, Part 2; public transport facilities in Chapter IX, Part 3; water supplies in Chapter VII, Part 2; town planning and building

control in Chapter V, Part 4; and the licensing of vehicles and road traffic control in Chapter IX, Part 3. Among the many other powers of local authorities are those relating to hospitals and nursing services, kindergartens, hostels for school children, community centres, dental clinics, infant and maternal health centres, day nurseries, jetties, swimming baths, swimming pools, sanitation and disposal of refuse, fire prevention, eradication of noxious weeds and vermin, electricity generation, aerodromes, abattoirs, quarries, pounds and cemeteries. Under the provisions of the Health Act local authorities are responsible for certain aspects of health administration.

The operations of any local government authority may be subject to investigation by a person appointed by the Governor or the Minister and having, for the purposes of the inquiry, the powers of a Royal Commission.

### **Financial Provisions**

Financial powers of local authorities, although derived mainly from the Local Government Act, are also provided by other statutes, including the Health Act, the Water Boards Act, the Vermin Act, the Fire Brigades Act, the Cemeteries Act, the Library Board of Western Australia Act, the Argentine Ant Act and the Noxious Weeds Act. Revenue from vehicle licence fees payable under the provisions of the Traffic Act is another important item in local government finance.

Before the commencement of the Local Government Act on 1 July 1961, a number of rates, in addition to those authorised by local government legislation, were imposed as separate levies. These included health, sanitary and sewerage rates, water rates and vermin rates, as well as rates relating to fire brigades, cemeteries, libraries and the control of Argentine ants and noxious weeds. Under the provisions of the Local Government Act, the local authorities may include these separate levies in the general rate provided for in the Act.

The general rate for any year is determined, subject to certain statutory limits, by dividing the sum required to make up the difference between anticipated expenditure and estimated revenue from sources other than rates for that year by the total value of rateable property in the district. In assessing this value, every local authority must adopt valuations made by the State Taxation Department, by the water supply authority for the district, or by a qualified valuer (or valuers) appointed by the Council. The Act provides for the constitution of Valuation Appeal Courts, to which appeals may be made on matters concerning valuations of property and liability for rates as assessed by the Council.

Valuations may be on the basis of either 'unimproved value' or 'annual value'. The unimproved value generally represents the price which the rated land might be expected to realise if sold on the open market and, as the term implies, excludes any improvements. The annual value is an estimate of the annual rental value of the property including improvements, but with a prescribed deduction to cover rates, repairs, insurance and other related expenditure. Generally, City Councils and Town Councils are required to assess the general rate on the basis of annual value, and Shire Councils on unimproved value. It is provided, however, that any Council may, under certain specified conditions, adopt the alternative basis. Although in general a Council is required to levy a rate which is uniform throughout its district, it may differentiate in rating by charging a higher rate in a specified area where expenditure, including loan interest and repayments, is incurred in providing special services for the benefit of that area.

Local authorities are authorised to raise loans for works and undertakings and for the liquidation of existing loan debts. Borrowing by means of a special bank overdraft is permissible, with the consent of the Minister, for the installation of sewerage connections or septic tanks and, with the approval of the Governor, for other works or undertakings. Money may also be borrowed by the sale of debentures, repayment being either by the system of reducible principal or by means of a sinking fund. Payments to debenture holders are made at prescribed intervals. Under the system of reducible principal, the local authority undertakes to pay both principal and interest by fixed instalments. Where redemption is by means of a sinking fund, the local authority is required to establish and maintain the necessary fund at the State Treasury. Interest on the loan is normally paid half-yearly and the full amount of the loan is repaid at maturity.

The extent of loan raisings for works and undertakings is controlled by a provision which, except with the specific approval of the Governor, imposes a limit on the borrowings of an authority. This limit is determined by deducting the net total debt on existing loans from a sum equal to ten times the amount obtained by subtracting from the average of the ordinary revenue of the authority during the preceding two years the average, for the same period, of its annual expenditure on the servicing of loans. The legislation allows that balances standing to the credit of sinking funds for loan repayment, as well as amounts actually repaid, may be deemed to be repayments for the purposes of calculating net total debt. In the case of borrowings to liquidate existing loans, it is provided that the money raised shall not exceed the outstanding balance of the loan.

Before a loan may be raised by the issue of debentures, approval of the borrowing must be obtained from the State Treasury and the local authority must then publish in a newspaper and in the *Government Gazette* a notification of its intention to borrow money, including a statement of the amount of the proposed loan, its purpose and other relevant matters. Except in the case of a loan to liquidate an existing loan debt, the ratepayers of the district may demand that the proposition be submitted to a poll. If less than 15 per cent of the ratepayers vote at the poll, the raising of the loan is approved. Where not less than 15 per cent of ratepayers vote and the majority are against the loan, or the number of votes against the loan is equal to the number of those in favour, the raising of the loan is forbidden.

Certain of the works and undertakings for which loan moneys may be used are specified in the Local Government Act. They include the construction of streets, roads and bridges, sewers, drains and water works; the erection or purchase of electric lighting plant, gas works and stone quarries; the provision of hostels for school children, libraries and other recreational facilities; the construction of civic and other buildings; and the purchase of land, materials and equipment. Where a particular work or undertaking is not specified in the Act the Governor may approve of it as a project for which money may be borrowed.

The financial transactions of local government authorities are subject to annual audit either by an auditor (or auditors) appointed by the Council or by a government inspector appointed by the Minister. To qualify for the office of auditor, a person must be a member of a specified institute or society of accountants and be registered as an auditor under the Companies Act. Appointment is for a term not exceeding two years, at the end of which time the holder of the office is eligible for reappointment.

The financial year for all Councils ends on 30 June.

Details of the revenue and expenditure of local authorities during the five-year period ending with the financial year 1970-71 are given in the section *Local Government Finance* in Chapter VI, Part 1.

## CHAPTER IV—POPULATION AND VITAL STATISTICS

### Part 1—Population

*NOTE.* Population censuses prior to the Commonwealth Census of 1911 were undertaken by the Governments of the several Australian Colonies. In the Western Australian Census it was the practice to exclude full-blood Aborigines from the tabulations. Aborigines have been enumerated as completely as possible at all censuses since the establishment of the Commonwealth. However, those having more than one-half Aboriginal blood (see reference 'Aborigines' on page 123) were excluded from published census results in accordance with the requirements of section 127 of the Australian Constitution. This section was repealed with effect from 10 August 1967, and official population statistics for dates and periods subsequent to the 1966 Census include Aborigines. It has been possible to compile some data from the 1966 Census on the basis of total population (i.e. including Aborigines), and where particulars were available at the time of going to press they have been incorporated in the following pages. Some further information will be found in the Appendix.

Figures relating to the 1971 Census are final. Population estimates for dates and periods up to 30 June 1971 are final; later estimates are subject to revision in accordance with the results of the next Census.

The State of Western Australia, although comprising almost one-third of the total area of Australia, contains little more than 8 per cent of the population.

At the end of 1829, the year of establishment of the Colony, there were 1,000 persons in Western Australia. Progress in the early years was slow, and in 1849 the population was still less than 5,000. Transportation of convicts, begun in the following year, resulted in some acceleration, but it was not until the discovery of gold in the Kimberley in 1885 and the rich finds at Coolgardie in 1892 and at Kalgoorlie in 1893 that any marked increase took place. This development was so rapid that, in the last decade of the century, the population was almost quadrupled, from 48,500 at the end of 1890 to 180,000 in 1900, representing an average annual rate of increase of 14·01 per cent. The rate of growth in those years has never been approached in the present century, as will be seen from the table on page 139, but the average annual rate of increase of Western Australia's population from the beginning of the century to the end of 1971, 2·51 per cent, has been higher than that of any other State and of the Commonwealth as a whole, 1·75 per cent.

### THE CENSUS

The first systematic census of the Colony of Western Australia was taken in 1848, since when there have been fourteen enumerations, at the dates shown in the table on page 123. The Census of 1881 was the first taken simultaneously in all the Australian Colonies and formed part of the first simultaneous census of the British Empire.

The first census of the Commonwealth of Australia conducted under the authority of the *Census and Statistics Act* 1905 was taken in 1911. The Act provided that a census should be taken in that year 'and in every tenth year thereafter'. In 1930 this provision was amended by the addition of the words 'or at such other time as is prescribed'. The depressed economic conditions of 1931 caused the postponement of the third Australian census to 1933, and because of war conditions the fourth Australian census was not taken until 1947. Consideration was then given to holding future censuses in the series of years originally provided for by the Act. However, it was thought that the interval from 1947 to 1951 was too short, and it was therefore decided to take the fifth census in 1954, at the mid-point of the period from 1947 to 1961. The sixth census was held in 1961. Owing to the administrative demand for more frequent counts of the population, censuses were taken in 1966 and 1971.

## Scope of the Census

The Australian Census is conducted on a *de facto* basis, i.e. it records the population actually in Australia, persons being enumerated at the place where they spent the night of the census, and the population so recorded being credited to that place whether or not it is the usual place of residence.

The Census covers the population of the Commonwealth and the dwellings in which it lives. The only persons excluded from the census tabulations are diplomatic representatives of overseas countries and their families and staffs having diplomatic immunity in accordance with international practice. Prior to the Census of 30 June 1971 full-blood Australian Aborigines were also excluded (see the following section *Aborigines*).

The term 'dwelling', as defined in the Census and Statistics Act, means 'a building, erection, or tenement, whether permanent or temporary, which is wholly or partly used for the purpose of human habitation and includes any ship or other vessel in any port of the Commonwealth or in any inland waters thereof, or any ship or vessel on a passage between any two Commonwealth ports'.

Tables dealing with dwellings recorded at the census will be found in Chapter V, Part 4.

**Aborigines.** Before an amendment to the Australian Constitution in 1967, it was provided by section 127 that 'in reckoning the numbers of the people of the Commonwealth, or of a State or other part of the Commonwealth, aboriginal natives shall not be counted'. This provision was deleted following a referendum held on 27 May 1967 which resulted in a large majority of votes in favour of its repeal. The enabling Act, the *Constitution Alteration (Aboriginals)* 1967, came into operation on 10 August 1967.

With regard to the original provision, Commonwealth legal authorities were of the opinion that persons of the half-blood were not 'aboriginal natives' within the meaning of the Constitution, and *a fortiori* that persons of less than half Aboriginal blood were not Aboriginal natives. Accordingly, only persons having Aboriginal blood to a degree greater than one-half were excluded from the census tabulations. Dwellings occupied solely by full-blood Aborigines so defined were similarly excluded.

Tables relating to the Aboriginal population appear on pages 136-7.

## Recorded Population

The population recorded in Western Australia at each census from 1848, its relation to the Australian population, and the masculinity are shown in the following table.

POPULATION AT EACH CENSUS DATE—1848-1971 (a)  
WESTERN AUSTRALIA AND AUSTRALIA

Date of Census	Western Australia			Australia	Western Australia	
	Males	Females	Persons	Persons (b)	Proportion of Australia (per cent)	Masculinity (c)
1848—10 October	2,818	1,804	4,622	326,445	1.42	156.21
1854—30 September	7,779	3,964	11,743	671,436	1.75	196.24
1859—31 December	9,522	5,315	14,837	1,097,305	1.35	179.15
1870—31 March	15,375	9,410	24,785	1,606,057	1.54	163.39
1881—3 April	17,062	12,646	29,708	2,250,194	1.32	134.92
1891—5 April	29,807	19,975	49,782	3,177,823	1.57	149.22
1901—31 March	112,875	71,249	184,124	3,773,801	4.88	158.42
1911—3 April	161,565	120,549	282,114	4,455,005	6.33	134.02
1921—4 April	177,278	155,454	332,732	5,435,734	6.12	114.04
1933—30 June	233,937	204,915	438,852	6,629,839	6.62	114.16
1947—30 June	258,076	244,404	502,480	7,579,358	6.63	105.59
1954—30 June	330,358	309,413	639,771	8,986,530	7.12	106.77
1961—30 June	375,452	361,177	736,629	10,508,186	7.01	103.95
1966—30 June (d)	432,569	415,531	848,100	11,599,498	7.31	104.10
1971—30 June (d)	529,066	501,403	1,030,469	12,755,638	8.08	105.52

(a) Figures for 30 June 1961 and earlier exclude full-blood Aborigines (see NOTE on page 122); those for 1966 and 1971 refer to total population (i.e. including Aborigines).  
(b) Figures for dates prior to 3 April 1881 are estimates. (c) Number of males to each 100 females.  
(d) See footnote (a).

**Characteristics of the Population <sup>(1)</sup>**

**Masculinity.** The sharp rise in masculinity between the Census of 1848 and the three succeeding enumerations, as shown in the preceding table, was doubtless a result of the transportation of convicts which began in 1850 and continued until 1868. During this period a total of 9,668 convicts, all of whom were males, were brought to the Colony. The high levels of masculinity disclosed by the Censuses of 1891 and 1901 may be attributed to the influx of a predominantly male population following the gold discoveries of 1885 and later years.

The masculinity of Western Australia's population has continued to be high. At 30 June 1971, it stood at 105·52 and was higher than in any other State and significantly higher than the Commonwealth figure of 101·10.

**Age.** The following table shows the numbers and proportions of the population of Western Australia in selected age groups at each census from 1933 to 1966. The age groups have been chosen as representing, in a general sense, such sectors as the pre-school population, children of school age, minors, women of child-bearing age, the economically active population, and those beyond normal working age.

POPULATION IN SELECTED AGE GROUPS (a)—CENSUSES, 1933 TO 1966

Age last birthday (years)	Number in each age group (b)					Per cent of total				
	Census, 30 June—					Census, 30 June—				
	1933	1947	1954	1961	1966	1933	1947	1954	1961	1966
<b>MALES</b>										
Under 6 ....	24,743	31,749	45,350	50,559	52,840	10·58	12·30	13·73	13·47	12·38
6-12 ....	29,116	29,717	44,075	56,195	63,328	12·45	11·51	13·34	14·97	14·84
6-15 ....	40,205	41,261	59,028	78,270	89,044	17·19	15·99	17·87	20·85	20·87
Under 18 ....	73,091	81,352	113,847	141,371	157,932	31·24	31·52	34·46	37·65	37·01
Under 21 ....	85,924	92,636	126,605	157,345	180,202	36·73	35·89	38·32	41·91	42·23
15-44 ....	114,045	116,353	142,694	150,826	181,273	48·75	45·08	43·19	40·17	42·48
15-64 ....	158,713	168,675	208,670	228,248	265,023	67·84	65·36	63·16	60·79	62·11
65 and over ....	13,978	20,386	22,262	24,593	28,331	5·98	7·90	6·74	6·55	6·64
All ages ....	233,937	258,076	330,358	375,452	426,691	100·00	100·00	100·00	100·00	100·00
<b>FEMALES</b>										
Under 6 ....	23,833	30,518	43,871	47,888	50,180	11·63	12·49	14·18	13·26	12·24
6-12 ....	28,049	28,911	41,897	54,243	60,036	13·69	11·83	13·54	15·02	14·64
6-15 ....	38,853	40,023	56,210	75,024	84,790	18·96	16·38	18·17	20·77	20·68
Under 18 ....	70,369	78,667	109,142	134,811	150,276	34·34	32·19	35·27	37·33	36·65
Under 21 ....	82,608	90,538	121,393	150,128	171,055	40·31	37·04	39·23	41·57	41·72
15-44 ....	98,083	110,993	131,254	143,056	168,419	47·87	45·41	42·42	39·61	41·08
15-64 ....	134,980	157,458	189,062	213,573	247,244	65·87	64·43	61·10	59·13	60·31
65 and over ....	10,833	20,235	25,027	30,504	35,895	5·29	8·28	8·09	8·45	8·76
All ages ....	204,915	244,404	309,413	361,177	409,982	100·00	100·00	100·00	100·00	100·00
<b>PERSONS</b>										
Under 6 ....	48,576	62,267	89,221	98,447	103,020	11·07	12·39	13·95	13·36	12·31
6-12 ....	57,165	58,628	85,972	110,438	123,364	13·03	11·67	13·44	14·99	14·74
6-15 ....	79,058	81,284	115,238	153,294	173,834	18·01	16·18	18·01	20·81	20·78
Under 18 ....	143,460	160,019	222,989	276,182	308,208	32·69	31·85	34·85	37·49	36·84
Under 21 ....	168,532	183,174	247,998	307,473	351,257	38·40	36·45	38·76	41·74	41·98
15-44 ....	212,128	227,346	273,948	293,882	349,692	48·34	45·24	42·82	39·90	41·80
15-64 ....	293,693	326,133	397,732	441,821	512,267	66·92	64·90	62·17	59·98	61·23
65 and over ....	24,811	40,621	47,289	55,097	64,226	5·65	8·08	7·39	7·48	7·68
All ages ....	438,852	502,480	639,771	736,629	836,673	100·00	100·00	100·00	100·00	100·00

(a) Excludes full-blood Aborigines (see NOTE on page 122). (b) Recorded ages adjusted by the distribution of ages 'not stated'.

<sup>(1)</sup> Tables showing a comparison of characteristics of the population at the Censuses of 1966 and 1971 are given in the Appendix.

## AGE DISTRIBUTION OF THE POPULATION (a)—CENSUSES, 1933 TO 1966

Age last birthday (years)	Population in each age group (b)					Percentage distribution				
	Census, 30 June—					Census, 30 June—				
	1933	1947	1954	1961	1966	1933	1947	1954	1961	1966
0-4 .....	40,297	52,452	74,978	81,916	84,810	9.18	10.44	11.72	11.12	10.14
5-9 .....	40,793	44,592	67,079	80,754	89,219	9.30	8.87	10.48	10.96	10.66
10-14 .....	39,258	38,682	52,693	77,041	86,151	8.95	7.70	8.24	10.46	10.30
15-19 .....	40,152	39,939	45,251	57,738	79,294	9.15	7.95	7.07	7.84	9.48
20-24 .....	40,169	38,434	43,602	47,877	59,508	9.15	7.65	6.82	6.50	7.11
25-29 .....	40,010	36,126	49,479	44,321	54,047	9.12	7.19	7.73	6.02	6.46
30-34 .....	35,948	38,585	48,520	49,647	49,418	8.19	7.68	7.58	6.74	5.91
35-39 .....	29,014	38,178	42,690	50,634	54,190	6.61	7.60	6.67	6.87	6.48
40-44 .....	26,835	36,084	44,406	43,665	53,235	6.11	7.18	6.94	5.93	6.36
45-49 .....	24,014	32,471	40,636	45,275	45,049	5.47	6.46	6.35	6.15	5.38
50-54 .....	21,960	25,064	35,647	40,376	44,850	5.00	4.99	5.57	5.48	5.36
55-59 .....	18,940	22,606	25,234	34,833	39,482	4.32	4.50	3.94	4.73	4.72
60-64 .....	16,651	18,646	22,267	27,455	33,194	3.79	3.71	3.48	3.73	3.97
65-69 .....	12,010	15,809	17,502	20,240	24,675	2.74	3.15	2.74	2.75	2.95
70-74 .....	7,281	11,934	13,340	15,742	17,222	1.66	2.38	2.09	2.14	2.06
75 and over .....	5,520	12,878	16,447	19,115	22,329	1.26	2.56	2.57	2.59	2.67
Total .....	438,852	502,480	639,771	736,629	836,673	100.00	100.00	100.00	100.00	100.00
Under 21 .....	168,532	183,174	247,998	307,473	351,257	38.40	36.45	38.76	41.74	41.98
21-64 .....	245,509	278,685	344,484	374,059	421,190	55.94	55.46	53.84	50.78	50.34
65 and over .....	24,811	40,621	47,289	55,097	64,226	5.65	8.08	7.39	7.48	7.68
Total .....	438,852	502,480	639,771	736,629	836,673	100.00	100.00	100.00	100.00	100.00

(a) Excludes full-blood Aborigines (see NOTE on page 122).  
'not stated'.

(b) Recorded ages adjusted by the distribution of ages

## AGE DISTRIBUTION OF THE POPULATION (a)—CENSUSES, 1961 AND 1966

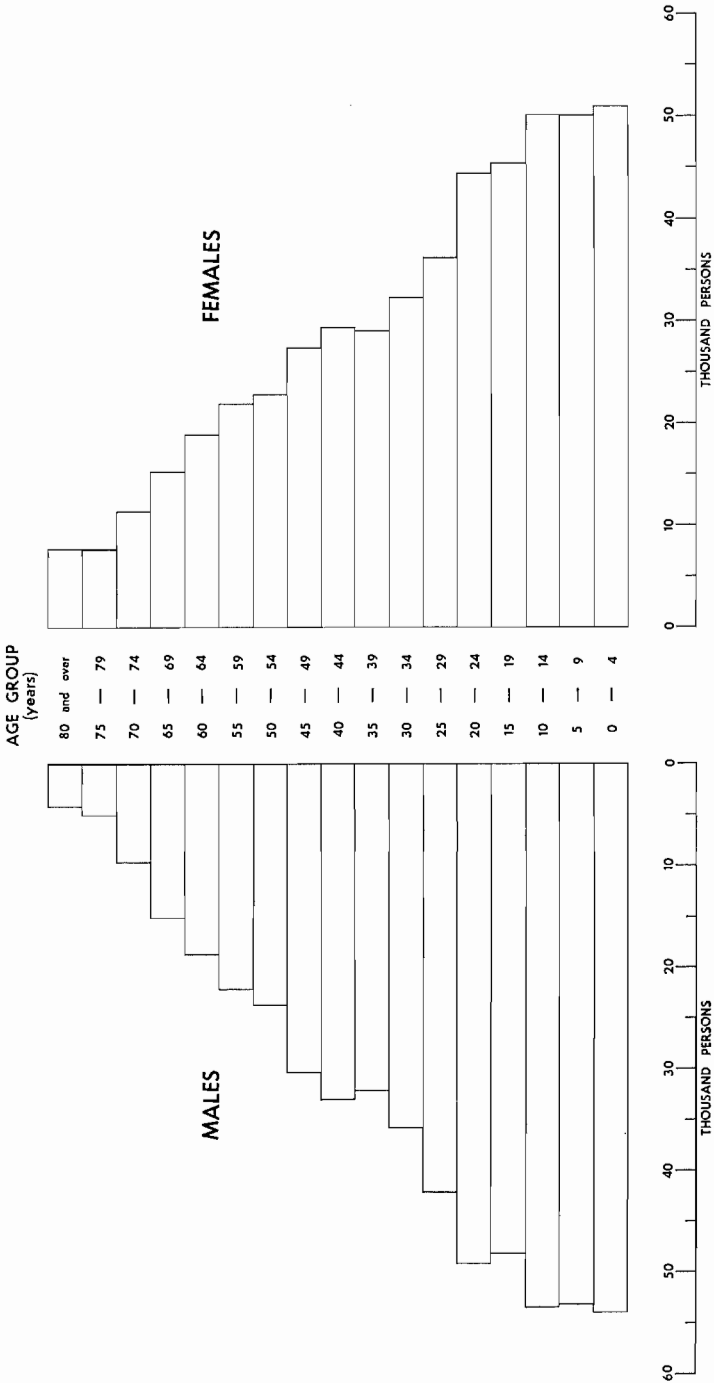
Age last birthday (years) (b)	Census, 30 June 1961		Census, 30 June 1966					
	Persons	Per cent of total	Males	Females	Persons			
					Number	Per cent of total	Increase or decrease (c) since 1961	
							Numerical	Per cent
0-4 .....	81,916	11.12	43,524	41,286	84,810	10.14	2,894	3.53
5-9 .....	80,754	10.96	45,791	43,428	89,219	10.66	8,465	10.48
10-14 .....	77,041	10.46	44,022	42,129	86,151	10.30	9,110	11.82
15-19 .....	57,738	7.84	40,714	38,580	79,294	9.48	21,556	37.33
20-24 .....	47,877	6.50	31,032	28,476	59,508	7.11	11,631	24.29
25-29 .....	44,321	6.02	28,135	25,912	54,047	6.46	9,726	21.94
30-34 .....	49,647	6.74	25,488	23,930	49,418	5.91	—229	—0.46
35-39 .....	50,634	6.87	28,204	25,986	54,190	6.48	3,556	7.02
40-44 .....	43,665	5.93	27,700	25,535	53,235	6.36	9,570	21.92
45-49 .....	45,275	6.15	22,907	22,142	45,049	5.38	—226	—0.50
50-54 .....	40,376	5.48	22,747	22,103	44,850	5.36	4,474	11.08
55-59 .....	34,833	4.73	20,634	18,848	39,482	4.72	4,649	13.35
60-64 .....	27,455	3.73	17,462	15,732	33,194	3.97	5,739	20.90
65-69 .....	20,240	2.75	12,023	12,652	24,675	2.95	4,435	21.91
70-74 .....	15,742	2.14	7,513	9,709	17,222	2.06	1,480	9.40
75-79 .....	10,065	1.37	5,020	6,895	11,915	1.42	1,850	18.38
80-84 .....	5,811	0.79	2,481	3,986	6,467	0.77	656	11.29
85-89 .....	2,474	0.34	991	1,928	2,919	0.35	445	17.99
90-94 .....	651	0.09	252	604	856	0.10	205	31.49
95-99 .....	107	0.01	49	109	158	0.02	51	47.66
100 and over .....	7	0.00	2	12	14	0.00	7	100.00
Total .....	736,629	100.00	426,691	409,982	836,673	100.00	100,044	13.58

(a) Excludes full-blood Aborigines (see NOTE on page 122).

(b) Recorded ages adjusted by the distribution of ages 'not stated'.

(c) Minus sign (—) denotes decrease.

Population, by Age Group: Census, 30 June 1971



**Birthplace; Nationality.** The category 'British' nationality, as used in the table below, includes all persons who, by virtue of section 7 of the *Nationality and Citizenship Act* 1948-1966, were deemed to be British subjects. It also includes persons who, under the provisions of the Act, were Australian citizens or citizens of any other country declared by regulation 5A of the Citizenship Regulations to be 'a country within the Commonwealth of Nations'. In addition, for the purpose of this table, Irish nationality is included with 'British'.

**BIRTHPLACE AND NATIONALITY OF THE POPULATION (a)—CENSUSES, 1961 AND 1966**

Classification	Census, 30 June 1961		Census, 30 June 1966					
	Persons	Per cent of total	Males	Females	Persons			
					Number	Per cent of total	Increase or decrease (b) since 1961	
							Numerical	Per cent
BIRTHPLACE								
Australia—								
Western Australia .....	501,770	68·12	276,471	277,156	553,627	66·17	51,857	10·33
Elsewhere in Australia .....	70,412	9·56	41,727	42,528	84,255	10·07	13,843	19·66
Total .....	572,182	77·68	318,198	319,684	637,882	76·24	65,700	11·48
New Zealand .....	1,913	0·26	1,431	1,237	2,668	0·32	755	39·47
Europe—								
United Kingdom and Republic of Ireland .....	83,365	11·32	54,932	49,188	104,120	12·44	20,755	24·90
Austria .....	1,068	0·14	621	489	1,110	0·13	42	3·93
Germany .....	5,583	0·76	2,939	2,996	5,935	0·71	352	6·30
Greece .....	4,088	0·55	3,113	2,330	5,443	0·65	1,355	33·15
Italy .....	25,249	3·43	16,005	12,136	28,141	3·36	2,892	11·45
Latvia .....	1,247	0·17	633	501	1,134	0·14	—113	—9·06
Netherlands .....	11,163	1·52	5,755	4,614	10,369	1·24	—794	—7·11
Poland .....	4,711	0·64	2,775	1,952	4,727	0·56	16	0·34
Union of Soviet Socialist Republics (c) .....	1,672	0·23	836	792	1,628	0·19	—44	—2·63
Yugoslavia .....	5,876	0·80	4,641	2,860	7,501	0·90	1,625	27·65
Other .....	5,761	0·78	4,402	2,618	7,020	0·84	1,259	21·85
Total .....	149,783	20·33	96,652	80,476	177,128	21·17	27,345	18·26
Other birthplaces .....	12,751	1·73	10,410	8,585	18,995	2·27	6,244	48·97
GRAND TOTAL .....	736,629	100·00	426,691	409,982	836,673	100·00	100,044	13·58
NATIONALITY								
British (d)—								
Born in Australia.....	572,182	77·68	318,198	319,684	637,882	76·24	65,700	11·48
Born outside Australia .....	130,708	17·74	90,412	77,089	167,501	20·02	36,793	28·15
Total, British (d) .....	702,890	95·42	408,610	396,773	805,383	96·26	102,493	14·58
Foreign—								
Austrian .....	431	0·06	224	103	327	0·04	—104	—24·13
Dutch .....	7,367	1·00	2,148	1,837	3,985	0·48	—3,382	—45·91
German .....	1,897	0·26	956	570	1,526	0·18	—371	—19·56
Greek .....	1,882	0·26	1,499	1,066	2,565	0·31	683	36·29
Italian .....	13,905	1·89	6,723	6,099	12,822	1·53	—1,083	—7·79
Polish .....	1,783	0·24	560	400	960	0·11	—823	—46·16
Spanish .....	49	0·01	336	150	486	0·06	437	891·84
U.S. American .....	464	0·06	1,214	730	1,944	0·23	1,480	318·97
Yugoslav .....	2,177	0·30	1,957	1,080	3,037	0·36	860	39·50
Stateless .....	914	0·12	388	239	627	0·07	—287	—31·40
Other .....	2,870	0·39	2,076	935	3,011	0·36	141	4·91
Total, Foreign .....	33,739	4·58	18,081	13,209	31,290	3·74	—2,449	—7·26
GRAND TOTAL .....	736,629	100·00	426,691	409,982	836,673	100·00	100,044	13·58

(a) Excludes full-blood Aborigines (see NOTE on page 122).  
Ukraine.

(b) Minus sign (—) denotes decrease.

(c) Includes

(d) See letterpress immediately preceding table.

**Religion; Marital Status.** The Census and Statistics Act provides that there shall be no penalty for failure to answer the question on religion, and a statement to this effect is contained in the census schedule. This doubtless accounts for the high proportion of non-reply, amounting to 10·43 per cent of the population in 1961 and 10·85 per cent in 1966.

**RELIGION AND MARITAL STATUS OF THE POPULATION (a)—CENSUSES, 1961 AND 1966**

Classification	Census, 30 June 1961		Census, 30 June 1966					
	Persons	Per cent of total	Males	Females	Persons			
					Number	Per cent of total	Increase or decrease (b) since 1961	
							Numerical	Per cent
RELIGION								
Christian—								
Baptist ....	8,961	1·22	5,118	5,602	10,720	1·28	1,759	19·63
Brethren ....	857	0·12	393	406	799	0·10	—58	—6·77
Catholic (c) ....	74,121	10·06	48,389	50,729	99,118	11·85	24,997	33·72
Catholic, Roman (c) ....	106,052	14·40	60,705	53,836	114,541	13·69	8,489	8·00
Church of England ....	289,863	39·35	159,309	156,844	316,153	37·79	26,290	9·07
Churches of Christ ....	10,261	1·39	5,369	6,127	11,496	1·37	1,235	12·04
Congregational ....	8,026	1·09	4,016	4,359	8,375	1·00	349	4·35
Lutheran ....	4,460	0·61	2,640	2,513	5,153	0·62	693	15·54
Methodist ....	76,465	10·38	39,423	41,417	80,840	9·66	4,375	5·72
Orthodox ....	9,057	1·23	6,560	5,275	11,835	1·41	2,778	30·67
Presbyterian ....	40,583	5·51	22,080	21,975	44,055	5·27	3,472	8·56
Salvation Army ....	4,545	0·62	2,388	2,534	4,922	0·59	377	8·29
Seventh-day Adventist ....	3,790	0·51	1,927	2,430	4,357	0·52	567	14·96
Protestant (undefined) ....	5,234	0·71	3,470	3,209	6,679	0·80	1,445	27·61
Other (including Christian undefined) ....	8,756	1·19	5,818	6,346	12,164	1·45	3,408	38·92
Total, Christian ....	651,031	88·38	367,605	363,602	731,207	87·39	80,176	12·32
Non-Christian—								
Hebrew ....	2,782	0·38	1,510	1,486	2,996	0·36	214	7·69
Other ....	836	0·11	768	298	1,066	0·13	230	27·51
Total, Non-Christian	3,618	0·49	2,278	1,784	4,062	0·49	444	12·27
Indefinite ....	2,028	0·28	1,558	1,216	2,774	0·33	746	36·79
No religion ....	3,156	0·43	5,060	2,759	7,819	0·93	4,663	147·75
Total replies ....	659,833	89·57	376,501	369,361	745,862	89·15	86,029	13·04
No reply ....	76,796	10·43	50,190	40,621	90,811	10·85	14,015	18·25
GRAND TOTAL ....	736,629	100·00	426,691	409,982	836,673	100·00	100,044	13·58
MARITAL STATUS								
Never married—								
Under 15 years of age ....	239,711	32·54	133,337	126,843	260,180	31·10	20,469	8·54
15 years of age and over ....	123,813	16·81	91,188	60,192	151,380	18·09	27,567	22·27
Total ....	363,524	49·35	224,525	187,035	411,560	49·19	48,036	13·21
Married ....	323,294	43·89	185,239	183,053	368,292	44·02	44,998	13·92
Married but permanently separated (d) ....	9,830	1·33	5,534	5,986	11,520	1·38	1,690	17·19
Divorced ....	6,524	0·89	3,741	3,774	7,515	0·90	991	15·19
Widowed ....	33,457	4·54	7,652	30,134	37,786	4·52	4,329	12·94
GRAND TOTAL ....	736,629	100·00	426,691	409,982	836,673	100·00	100,044	13·58

(a) Excludes full-blood Aborigines (see NOTE on page 122).  
individual census schedules.

(d) Legally or otherwise.

(b) Minus sign (—) denotes decrease.

(c) As stated in

**Occupational Status; Industry; Occupation.** Classifications of the population according to occupational status, industry, and occupation, as recorded at the Census of 30 June 1966, will be found in Chapter X.

**Dwellings.** Particulars of dwellings, as revealed by the census, are given in Chapter V.

## INTERCENSAL INCREASES

The following table shows the population of Western Australia at each census from 1891 to 1971, and the intercensal gains or losses by natural increase and by migration. It also shows the average annual gains or losses in each intercensal period.

POPULATION—ANALYSIS OF INTERCENSAL INCREASES, 1891-1971

Period (a)	Population at beginning of period	Natural increase (b)		Net migration (c)		Total increase		Population at end of period
		Total	Annual average	Total	Annual average	Number	Annual average	
1891-1901 (10 years) ....	49,782	15,901	1,590	118,441	11,844	134,342	13,434	184,124
1901-1911 (10 years) ....	184,124	44,246	4,425	53,744	5,374	97,990	9,799	282,114
1911-1921 (10 years) ....	282,114	51,850	5,185	-1,232	-123	50,618	5,062	332,732
1921-1933 (12½ years) ....	332,732	60,127	4,908	45,993	3,755	106,120	8,663	438,852
1933-1947 (14 years) ....	438,852	69,439	4,960	-5,811	-415	63,628	4,545	502,480
1947-1954 (7 years) ....	502,480	65,376	9,368	71,715	10,245	137,291	19,613	639,771
1954-1961 (7 years) ....	639,771	79,432	11,348	17,426	2,489	96,858	13,837	736,629
1961-1966 (5 years) ....	736,629	53,122	10,624	46,922	9,384	100,044	20,009	836,673
1966-1971 (5 years) (d) ....	848,100	64,454	12,891	117,915	23,583	182,369	36,474	1,030,469

(a) For Census dates, see table on page 123. (b) Excess of births registered over deaths registered. (c) Interstate and overseas. Minus sign (—) indicates loss by migration. (d) Figures relate to total population (i.e. including Aborigines); those shown for earlier periods exclude full-blood Aborigines (see NOTE on page 122).

The following table shows the increases in the populations of the several States and Territories, and of Australia as a whole, during each of the eight intercensal periods from 1901 to 1971.

POPULATION—INTERCENSAL INCREASES: STATES AND TERRITORIES, 1901-1971

State or Territory	1901-1911 (a) (10 years)	1911-1921 (10 years)	1921-1933 (12½ years)	1933-1947 (14 years)	1947-1954 (7 years)	1954-1961 (7 years)	1961-1966 (5 years)	1966-1971 (b) (5 years)
NUMERICAL INCREASE								
New South Wales (c) ....	293,602	453,637	500,476	383,991	438,691	493,484	316,809	363,279
Victoria ....	114,481	215,729	288,981	234,440	397,640	477,772	289,413	282,134
Queensland ....	107,684	150,159	191,562	158,881	211,844	200,569	144,857	152,741
South Australia ....	50,212	86,602	85,789	65,124	151,021	172,246	122,535	78,723
Western Australia ....	97,990	50,618	106,120	63,628	137,291	96,858	100,044	182,369
Tasmania ....	18,736	22,569	13,819	29,479	51,674	41,588	21,095	18,977
Northern Territory ....	-1,501	557	983	6,018	5,601	10,626	10,338	29,886
Australian Capital Territory ....	(d)	858	6,375	7,958	13,410	28,513	37,185	48,031
AUSTRALIA ....	681,204	980,729	1,194,105	949,519	1,407,172	1,521,656	1,042,276	1,156,140

PROPORTIONAL INCREASE (per cent)

New South Wales (c) ....	21.67	27.55	23.83	14.76	14.70	14.41	8.09	8.57
Victoria ....	9.53	16.40	18.87	12.88	19.35	19.48	9.88	8.76
Queensland ....	21.62	24.79	25.34	16.77	19.15	15.21	9.54	9.12
South Australia ....	14.01	21.20	17.33	11.21	23.38	21.61	12.64	7.19
Western Australia ....	53.22	17.94	31.89	14.50	27.32	15.14	13.58	21.50
Tasmania ....	10.86	11.80	6.46	12.95	20.10	13.47	6.02	5.11
Northern Territory ....	-31.20	16.83	25.42	124.08	51.54	64.52	38.15	52.89
Australian Capital Territory ....	(d)	50.06	247.86	88.95	79.33	94.06	63.21	50.02
AUSTRALIA ....	18.05	22.01	21.97	14.32	18.57	16.93	9.92	9.97

AVERAGE ANNUAL RATE OF INCREASE (per cent)

New South Wales (c) ....	1.97	2.46	1.76	0.99	1.98	1.94	1.57	1.66
Victoria ....	0.91	1.53	1.42	0.87	2.56	2.58	1.90	1.69
Queensland ....	1.98	2.24	1.86	1.11	2.53	2.04	1.84	1.76
South Australia ....	1.32	1.94	1.31	0.76	3.05	2.83	2.41	1.40
Western Australia ....	4.36	1.66	2.29	0.97	3.51	2.03	2.58	3.97
Tasmania ....	1.04	1.12	0.51	0.87	2.65	1.82	1.18	1.00
Northern Territory ....	-3.67	1.57	1.87	5.93	6.12	7.37	6.68	8.86
Australian Capital Territory ....	(d)	4.14	10.71	4.65	8.70	9.93	10.29	8.45
AUSTRALIA ....	1.67	2.01	1.63	0.96	2.46	2.26	1.91	1.92

(a) Minus sign (—) denotes decrease. (b) See footnote (d) to previous table. (c) Includes Australian Capital Territory prior to 1911. (d) Part of New South Wales prior to 1911.

## GEOGRAPHICAL DISTRIBUTION

**Urban, Rural and Migratory Population**

At the 1971 Census a boundary was defined for each population cluster of 1,000 or more persons. These clusters are named 'urban centres' and the population enumerated in them is classified as urban for statistical purposes.

In determining the boundary of an urban centre with a population of 25,000 or more, all contiguous Census collectors' districts which were found to have a minimum population density of 500 per square mile at the Census were included. Some areas of lower density were classified as urban in accordance with certain other specified criteria. The term *Major urban* is applied to those centres which had a population of 100,000 or more, and supersedes the term *Metropolitan* as used at previous censuses. Urban Perth is the only such centre in Western Australia.

Around each urban centre with a population of at least 100,000 a further boundary was defined to contain the anticipated development of the urban centre and associated smaller urban centres for a period of at least twenty years. This boundary delimits an area which is now, or is expected to be, in close social and economic contact with the urban centre. It is a fixed boundary, as distinct from the boundary of the urban centre which moves from census to census as urbanisation proceeds. In Western Australia, the area within this fixed boundary is described as the Perth Statistical Division (see map at back of Year Book).

Urban Perth at 30 June 1971 comprised the Cities of Fremantle, Nedlands, Perth, South Perth, and Subiaco; the Towns of Claremont, Cottesloe, East Fremantle, and Mosman Park; the Shires of Bassendean and Peppermint Grove; parts of the Cities of Melville and Stirling, parts of the Towns of Canning and Cockburn, and parts of the Shires of Armadale-Kelmscott, Bayswater, Belmont, Gosnells, Kalamunda, Mundaring, Swan, and Wanneroo. It covered an approximate area of 204 square miles, compared with 148 square miles (designated Perth Metropolitan Area) at 30 June 1966. The area of the Perth Statistical Division was 2,073 square miles.

In delimiting urban centres with a population of less than 25,000 persons all continuous urban growth is included (which, in small urban centres, would not necessarily occur if the density criterion were applied), together with any close but non-contiguous development which could be clearly regarded as part of the centre.

A full description of the criteria adopted in the delimitation of urban centres appears in *Field Count Statement No. 7—Population: Local Government Areas and Towns, Western Australia* published February 1972 by the Commonwealth Statistician, Canberra.

*Rural* population represents persons enumerated in the area not included in urban centres. The term *Migratory* refers to persons (both passengers and crew) who, at mid-night on Census night, were enumerated on board ships in Western Australian ports, or ships which had left an Australian port before Census night for a next port of call in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

The following tables show, for 1966 and 1971, a division of the population of each State and Territory into *Major urban*, *Other urban*, *Rural* and *Migratory*. The classification *Major urban* represents the population of the urban centres of Sydney (2,725,064 at 30 June 1971), Newcastle (255,162) and Wollongong (188,679), as well as part of Canberra (15,434), in New South Wales; Melbourne (2,394,117) and Geelong (115,181) in Victoria; Brisbane (818,423) in Queensland; Adelaide (809,482) in South Australia; Perth (641,800) in Western Australia; Hobart (129,928) in Tasmania; and part of Canberra (140,864) in the Australian Capital Territory.

In the intercensal period each of the States and Territories showed an increase in urban population, and all except the Northern Territory experienced a decline in rural population. In Australia as a whole, urban population increased by 1,296,448 (13.48 per cent) and rural population fell by 137,833 (7.02 per cent).

URBAN AND RURAL POPULATIONS (a)—STATES AND TERRITORIES  
CENSUSES, 1966 AND 1971  
(Persons)

State or Territory	Urban			Rural	Migratory	Total population
	Major	Other	Total			
CENSUS, 30 JUNE 1966						
New South Wales ....	2,843,395	816,767	3,660,162	568,675	9,064	4,237,901
Victoria .....	2,213,461	540,078	2,753,539	463,690	2,988	3,220,217
Queensland .....	716,402	557,841	1,274,243	398,018	2,063	1,674,324
South Australia .....	728,279	174,964	903,243	190,167	1,574	1,094,984
Western Australia .....	500,246	142,111	642,357	202,704	3,039	848,100
Tasmania .....	119,469	141,513	260,982	109,779	675	371,436
Northern Territory .....	.....	30,166	30,166	26,043	295	56,504
Australian Capital Territory	92,311	.....	92,311	3,721	.....	96,032
AUSTRALIA .....	7,213,563	2,403,440	9,617,003	1,962,797	19,698	11,599,498

CENSUS, 30 JUNE 1971						
New South Wales ....	3,176,980	898,937	4,075,917	519,304	5,959	4,601,180
Victoria ....	2,509,298	561,493	3,070,791	429,257	2,303	3,502,351
Queensland ....	818,423	629,601	1,448,024	375,376	3,665	1,827,065
South Australia ....	809,482	183,187	992,669	179,148	1,890	1,173,707
Western Australia ....	641,800	198,395	840,195	187,657	2,617	1,030,469
Tasmania ....	129,928	159,652	289,580	100,418	415	390,413
Northern Territory ....	...	55,411	55,411	30,605	374	86,390
Australian Capital Territory	(b)140,864	...	(b)140,864	3,199	...	144,063
AUSTRALIA ....	8,226,775	2,686,676	10,913,451	1,824,964	17,223	12,755,638

(a) Figures relate to all persons enumerated, *i.e.* including Aborigines. See page 130 for definitions of *Urban*, *Rural*, etc. (b) The total population of urban Canberra was 156,298, including 15,434 persons in Queanbeyan Municipality (New South Wales).

URBAN AND RURAL POPULATIONS (a)—STATES AND TERRITORIES  
PERCENTAGE DISTRIBUTION: CENSUSES, 1966 AND 1971  
(Per cent)

State or Territory	Urban			Rural	Migratory	Total
	Major	Other	Total			
CENSUS, 30 JUNE 1966						
New South Wales ....	67.09	19.27	86.37	13.42	0.21	100.00
Victoria ....	68.74	16.77	85.51	14.40	0.09	100.00
Queensland ....	42.79	33.32	76.10	23.77	0.12	100.00
South Australia ....	66.51	15.97	82.48	17.36	0.14	100.00
Western Australia ....	58.98	16.76	75.74	23.90	0.36	100.00
Tasmania ....	32.16	38.10	70.26	29.56	0.18	100.00
Northern Territory ....	.....	53.39	53.39	46.09	0.52	100.00
Australian Capital Territory	96.13	.....	96.13	3.87	.....	100.00
AUSTRALIA ....	62.18	20.72	82.90	16.92	0.16	100.00

CENSUS, 30 JUNE 1971						
New South Wales ....	69.05	19.51	88.56	11.32	0.13	100.00
Victoria ....	71.65	16.03	87.68	12.26	0.07	100.00
Queensland ....	44.79	34.46	79.25	20.55	0.20	100.00
South Australia ....	68.97	15.61	84.58	15.26	0.16	100.00
Western Australia ....	62.28	19.25	81.54	18.21	0.26	100.00
Tasmania ....	33.28	40.89	74.17	25.72	0.11	100.00
Northern Territory ....	...	64.14	64.14	35.43	0.43	100.00
Australian Capital Territory	97.78	...	97.78	2.22	...	100.00
AUSTRALIA ....	64.50	21.06	85.56	14.31	0.14	100.00

(a) See footnote (a) to previous table.

### Population in Statistical Divisions

Western Australia is divided into a number of municipal districts for the purposes of local government administration. These districts, of which there were 140 at 30 June 1971, are used as the basis of presentation of data derived not only from the Census of Population and Housing but also from many of the regular statistical collections. Information presented in this way is valuable when considering activities in particular local government areas but is often more detailed than is required for a broader geographical assessment. For this reason, the municipal districts are combined into Statistical Divisions which provide significant areas for the publication of statistics in a convenient and readily appreciable summary form. The Statistical Divisions and their component local government areas are shown on the map of the State appearing at the back of the Year Book.

In 1929, when statistics were first presented according to Statistical Divisions, Western Australia was divided into seven such areas. There are currently ten Statistical Divisions, and these have been used as the basis of compilation of the particulars in the following tables. The figures shown refer to the areas contained within the several Divisions as they existed at the Census of 30 June 1971.

STATISTICAL DIVISIONS—POPULATION AT EACH CENSUS FROM 1911  
(Figures compiled on the basis of the 1971 boundaries)

Statistical Division	Census date							
	1911 3 April	1921 4 April	1933 30 June	1947 30 June	1954 30 June	1961 30 June	1966 30 June (a)	1971 30 June (a)
POPULATION ('000)								
Perth Statistical Division ....	116.2	170.2	230.3	303.0	395.0	475.4	559.3	703.2
Other Divisions—								
South-West ....	27.0	34.4	50.4	52.0	68.6	71.6	73.0	77.3
Southern Agricultural ....	15.9	20.5	27.0	24.9	36.1	41.6	44.8	45.3
Central Agricultural ....	31.5	40.5	53.6	43.8	55.9	57.6	58.8	53.7
Northern Agricultural ....	13.4	17.7	26.6	24.7	32.1	35.8	38.8	42.8
Eastern Goldfields ....	55.0	33.7	33.2	37.7	34.6	34.1	35.1	42.8
Central ....	9.57	4.97	7.87	6.37	4.79	3.96	4.62	7.42
North-West ....	2.13	2.07	2.61	2.64	4.22	4.56	9.05	11.8
Pilbara ....	2.46	1.41	1.84	1.65	2.65	3.24	8.91	29.0
Kimberley (b) ....	1.96	2.18	2.13	2.77	3.54	5.67	12.7	14.6
Total (b) ....	158.9	157.3	205.3	196.5	242.5	258.2	285.8	324.7
Total, all Divisions (b) ....	275.1	327.5	435.7	499.5	637.5	733.6	845.1	1,027.9
Migratory (b) ....	7.02	5.19	3.20	2.98	2.27	3.02	3.04	2.62
WESTERN AUSTRALIA	282.1	332.7	438.9	502.5	639.8	736.6	848.1	1,030.5

PROPORTION OF STATE TOTAL (per cent)

Perth Statistical Division ....	41.18	51.16	52.49	60.29	61.75	64.54	65.95	68.24
Other Divisions—								
South-West ....	9.57	10.33	11.49	10.34	10.72	9.72	8.61	7.51
Southern Agricultural ....	5.63	6.16	6.15	4.96	5.65	5.65	5.28	4.39
Central Agricultural ....	11.16	12.16	12.22	8.71	8.74	7.82	6.94	5.21
Northern Agricultural ....	4.75	5.32	6.06	4.91	5.01	4.86	4.58	4.15
Eastern Goldfields ....	19.51	10.13	7.57	7.51	5.40	4.63	4.13	4.15
Central ....	3.39	1.49	1.79	1.27	0.75	0.54	0.54	0.72
North-West ....	0.75	0.62	0.60	0.32	0.66	0.62	1.07	1.14
Pilbara ....	0.87	0.42	0.42	0.33	0.41	0.44	1.05	2.81
Kimberley (b) ....	0.70	0.65	0.48	0.55	0.55	0.77	1.50	1.42
Total (b) ....	56.33	47.28	46.78	39.11	37.90	35.05	33.69	31.51
Total, all Divisions (b) ....	97.51	98.44	99.27	99.41	99.65	99.59	99.64	99.75
Migratory (b) ....	2.49	1.56	0.73	0.59	0.35	0.41	0.36	0.25
WESTERN AUSTRALIA	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

(a) Figures relate to total population (i.e. including Aborigines); those shown for 30 June 1961 and earlier exclude full-blood Aborigines (see NOTE on page 122).

(b) At censuses prior to 1954, the pearling fleet based on Broome was classified to Migratory (see letterpress on page 130). The estimated population involved was 2,500 in 1911; 1,500 in 1921; 800 in 1933; and 200 in 1947. From 1954, pearling crews have been included in the population of Broome.

## STATISTICAL DIVISIONS—POPULATION (a) AT CENSUSES, 1966 AND 1971

Statistical Division	Census, 30 June 1966				Census, 30 June 1971			
	Males	Females	Persons	Masculinity (b)	Males	Females	Persons	Masculinity (b)
Perth Statistical Division ....	275,122	284,176	559,298	96·81	349,453	353,746	703,199	98·79
Other Divisions—								
South-West ....	37,540	35,443	72,983	105·92	39,412	37,935	77,347	103·89
Southern Agricultural ....	23,496	21,312	44,808	110·25	23,548	21,733	45,281	108·35
Central Agricultural ....	31,628	27,192	58,820	116·31	28,590	25,071	53,661	114·04
Northern Agricultural ....	21,061	17,756	38,817	118·61	23,044	19,760	42,804	116·62
Eastern Goldfields ....	19,000	16,062	35,062	118·29	23,264	19,505	42,769	119·27
Central ....	2,640	1,980	4,620	133·33	5,108	2,312	7,420	220·93
North-West ....	5,747	3,299	9,046	174·20	6,729	5,055	11,784	133·12
Pilbara ....	6,350	2,557	8,907	248·34	19,385	9,600	28,985	201·93
Kimberley ....	7,476	5,224	12,700	143·11	8,225	6,377	14,602	128·98
Total ....	154,938	130,825	285,763	118·43	177,305	147,348	324,653	120·33
Total, all Divisions ....	430,060	415,001	845,061	103·63	526,758	501,094	1,027,852	105·12
Migratory (c) ....	2,509	530	3,039	473·40	2,308	309	2,617	746·93
WESTERN AUSTRALIA ....	432,569	415,531	848,100	104·10	529,066	501,403	1,030,469	105·52

(a) Figures relate to total population, i.e. including Aborigines. (b) Number of males to each 100 females. (c) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left an Australian port before Census night for a next port of call in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

STATISTICAL DIVISIONS—ANALYSIS OF POPULATION INCREASE (a)  
30 JUNE 1966 TO 30 JUNE 1971

Statistical Division	Intercensal increase of population (b)				
	By natural increase (c)	By migration	Total		
			Number	Per cent	Average annual rate (per cent)
Perth Statistical Division ....	37,507	106,394	143,901	25·73	4·69
Other Divisions—					
South-West ....	5,037	—673	4,364	5·98	1·17
Southern Agricultural ....	4,011	—3,538	473	1·06	0·21
Central Agricultural ....	5,445	—10,604	—5,159	—8·77	—1·82
Northern Agricultural ....	4,478	—491	3,987	10·27	1·97
Eastern Goldfields ....	3,635	4,072	7,707	21·98	4·05
Central ....	506	2,294	2,800	60·61	9·94
North-West ....	1,061	1,677	2,738	30·27	5·43
Pilbara ....	1,408	18,670	20,078	225·42	26·62
Kimberley ....	1,366	536	1,902	14·98	2·83
Total ....	26,947	11,943	38,890	13·61	2·58
Total, all Divisions ....	64,454	118,337	182,791	21·63	3·99
Migratory (d) ....	n.a.	—422	—422	—13·89	n.a.
WESTERN AUSTRALIA ....	64,454	117,915	182,369	21·50	3·97

n.a. denotes 'not applicable'.

(a) Figures relate to total population, i.e. including Aborigines. (b) Minus sign (—) denotes decrease. (c) Excess of births registered over deaths registered. (d) See note (c) to previous table.

The population of the Perth Statistical Division at the Census of 30 June 1971 was 703,199, or 68·2 per cent of the State total, compared with 559,298 (65·9 per cent) five years earlier, an increase of 143,901 persons or 25·7 per cent. The State's natural increase between the Censuses was 64,454 of which the Perth Statistical Division contributed 37,507. In addition, this Division experienced a net gain by migration of 106,394. The larger towns of the Agricultural and South-West Statistical Divisions also showed substantial population increases, the greatest being those of Geraldton (3,261 persons; or 26·7 per cent), Bunbury (2,312; 15·0 per cent) and Albany (1,661; 14·5 per cent).

The total population in the area outside the Perth Statistical Division rose by 38,890 or 13.6 per cent. The natural increase recorded in the area was 26,947, so that there was a gain of 11,943 persons by migration. Of the total increase of 38,890 persons, the Pilbara Division accounted for more than half with a population gain of 20,078 and showed the greatest proportional increase, 225.4 per cent. Other Divisions showing an increase were Eastern Goldfields, 7,707 (22.0 per cent); South-West, 4,364 (6.0 per cent); Northern Agricultural, 3,987 (10.3 per cent); Central, 2,800 (60.6 per cent); North-West, 2,738 (30.3 per cent); Kimberley 1,902 (15.0 per cent); and Southern Agricultural, 473 (1.1 per cent). The Central Agricultural Division experienced a decline in population with a loss of 5,159 persons, or 8.8 per cent.

The Eastern Goldfields, Central and Pilbara Statistical Divisions together comprised an area of 638,485 square miles (or almost two-thirds of the State) and had a population of only 79,174 persons at the Census of 30 June 1971. A low rainfall renders much of it virtually uninhabitable and desert or near-desert conditions prevail over some 350,000 square miles which includes much of the eastern and northern parts of the area and extends into the southern portion of the Kimberley Statistical Division. Almost no part of this desert area has an annual rainfall greater than ten inches and a considerable proportion has much less. Of the total population of 79,174 persons recorded in the three Divisions at the Census, nearly four-fifths were enumerated in the urban centres of Kalgoorlie-Boulder (20,865), Port Hedland (7,229), Esperance (4,874), Kambalda (4,224), Newman (3,906), Dampier (3,585), Tom Price (3,426), Paraburdoo (2,977), Karratha (1,838), Norseman (1,789), Roebourne (1,515) and Goldsworthy (1,020), and the townships of Meekatharra (927), Southern Cross (895), Mount Magnet (636), Coolgardie (624), Leonora (594), Wittenoom Gorge (422), Marble Bar (394), Koolyanobbing (306), Cue (287) and Ravensthorpe (225).

### Population of South-West Land Division

The South-West Land Division, as defined in the *Land Act, 1933-1971*, often has particular importance in matters of legislation and administration. Its boundaries are almost coincident with those of the area formed by the aggregation of the Perth Statistical Division and the South-West, Southern Agricultural, Central Agricultural and Northern Agricultural Statistical Divisions. It embraces an area of 98,305 square miles, a little more than one-tenth of the whole State (975,920 square miles), and had a population of 922,700 persons at the 1971 Census, equivalent to 89.5 per cent of the State total, compared with 774,800 (91.4 per cent) in 1966.

### Population North of 26° S. Latitude

For administrative and other purposes, the portion of the State lying north of the 26th parallel of latitude frequently has special significance. This area, which embraces part of the Central Statistical Division, almost all of the North-West Statistical Division, and the whole of the Pilbara and Kimberley Statistical Divisions, is 529,486 square miles in extent and is therefore somewhat greater in area than half the entire State. It had a population of 31,053 persons at the 1966 Census and 58,616 in 1971. Of this total, almost three-quarters were enumerated in the ports and other coastal settlements of Port Hedland (7,229), Carnarvon (4,242), Dampier (3,585), Exmouth (2,670), Derby (2,538), Broome (2,049), Karratha (1,838), Roebourne (1,515), Wyndham (1,515), Onslow (349), Shark Bay (323), and Lake MacLeod (299), the iron-ore mining centres of Newman (3,906), Tom Price (3,426), Paraburdoo (2,977) and Goldsworthy (1,020), the Ord River agricultural settlement at Kununurra (1,240), and the townships of Halls Creek (678), Wittenoom Gorge (422) and Marble Bar (394).

### POPULATION DENSITY

Urban Perth (see letterpress *Urban, Rural and Migratory Population* on page 130) is the most densely populated part of the State. At the Census of 30 June 1971 it had a population of 641,800 persons and an area of approximately 204 square miles, representing a density of about 3,146 persons per square mile. Among the Statistical Divisions, Perth with a

population of 703,199 and 2,073 square miles in area showed the highest density, 339 persons per square mile. The Central Statistical Division was the most sparsely populated with an area of 218,010 square miles (more than one-fifth of the entire State) and a Census population of only 7,420 persons, equivalent to an average of one person to every thirty-one square miles.

#### STATISTICAL DIVISIONS—AREA, POPULATION AND DENSITY: CENSUS, 30 JUNE 1971

Statistical Division	Area		Population				
	Square miles	Per cent of total	Males	Females	Persons		
					Total	Per cent of total	Density (per square mile)
Perth Statistical Division	2,073	0·21	349,453	353,746	703,199	68·24	339·22
Other Divisions—							
South-West	11,031	1·13	39,412	37,935	77,347	7·51	7·01
Southern Agricultural	22,046	2·26	23,548	21,733	45,281	4·39	2·05
Central Agricultural	30,270	3·10	28,590	25,071	53,661	5·21	1·77
Northern Agricultural	32,041	3·28	23,044	19,760	42,804	4·15	1·34
Eastern Goldfields	249,013	25·52	23,264	19,505	42,769	4·15	0·17
Central	218,010	22·34	5,108	2,312	7,420	0·72	0·03
North-West	77,612	7·95	6,729	5,055	11,784	1·14	0·15
Pilbara	171,462	17·57	19,385	9,600	28,985	2·81	0·17
Kimberley	162,363	16·64	8,225	6,377	14,602	1·42	0·09
Total	973,847	99·79	177,305	147,348	324,653	31·51	0·33
Total, all Divisions	975,920	100·00	526,758	501,094	1,027,852	99·75	1·05
Migratory (a)	n.a.	n.a.	2,308	309	2,617	0·25	n.a.
WESTERN AUSTRALIA	975,920	100·00	529,066	501,403	1,030,469	100·00	1·06

n.a. denotes 'not applicable'.

(a) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left an Australian port before Census night for a next port of call in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

Western Australia had a population density at the 1971 Census of only 1·06 persons per square mile, compared with an average of 4·30 for Australia as a whole. Victoria was the most densely populated State, having an average of 39·85 persons per square mile.

#### AREA, POPULATION AND DENSITY—STATES AND TERRITORIES: CENSUS, 30 JUNE 1971

State or Territory	Area		Population				
	Square miles	Per cent of total	Males	Females	Persons		
					Total	Per cent of total	Density (per square mile)
New South Wales	309,433	10·43	2,307,210	2,293,970	4,601,180	36·07	14·87
Victoria	87,884	2·96	1,750,062	1,752,289	3,502,351	27·46	39·85
Queensland	667,000	22·47	921,665	905,400	1,827,065	14·32	2·74
South Australia	380,070	12·81	586,051	587,656	1,173,707	9·20	3·09
Western Australia	975,920	32·88	529,066	501,403	1,030,469	8·08	1·06
Tasmania	26,383	0·89	196,442	193,971	390,413	3·06	14·80
Northern Territory	520,280	17·53	48,627	37,763	86,390	0·68	0·17
Australian Capital Territory	939	0·03	73,589	70,474	144,063	1·13	153·42
AUSTRALIA	2,967,909	100·00	6,412,712	6,342,926	12,755,638	100·00	4·30

#### ABORIGINAL POPULATION

Reference is made on page 123 to the exclusion of *full-blood* Aborigines from the census tabulations. Aborigines have, however, been enumerated at all censuses of the Commonwealth, although the degree of coverage and information obtained have varied substantially since 1911. Since the Census taken in 1933, the adequacy of the particulars obtained has improved progressively, as a result of an increasing number of Aborigines coming into contact with more populated areas.

At the 1966 Census extensive arrangements were made to obtain as full a coverage of full-blood Aborigines as possible and to enumerate fully those Aborigines 'out of contact'. Throughout Australia the assistance of Aboriginal welfare bodies, mission superintendents, sheep and cattle station owners, patrol officers and police was sought in an effort to include all Aborigines and to obtain complete information about them. Statistics relating to characteristics of Aborigines enumerated at the 1966 Census have been published by the Commonwealth Statistician, Canberra in a bulletin *The Aboriginal Population of Australia—Summary of Characteristics*. Some information selected from this bulletin is shown in the following tables.

Prior to the 1966 Census, Aborigines 'out of contact' were not enumerated and estimates of their numbers were made by authorities responsible for Aboriginal welfare. The total number of Aborigines not contacted by collectors at the 1954 Census was estimated to be 12,956, comprising 2,311 in Queensland, 1,760 in South Australia, 3,516 in Western Australia and 5,369 in the Northern Territory. It is estimated that, at the 1961 Census, 2,000 Aborigines in Western Australia and 1,944 in the Northern Territory were not contacted by collectors.

### Aborigines Enumerated

The statistics shown in the following tables relate to persons who, according to the census schedule, had Aboriginal blood to the degree of one-half or more, or were described simply as 'Aboriginal'.

ABORIGINAL POPULATION (a)—STATES AND TERRITORIES  
CENSUSES, 1954 TO 1966

State or Territory	Census, 30 June 1954			Census, 30 June 1961			Census, 30 June 1966		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
New South Wales ....	6,278	5,935	12,213	7,494	7,222	14,716	7,343	6,876	14,219
Victoria ....	691	704	1,395	899	897	1,796	856	934	1,790
Queensland ....	8,368	7,781	(b)16,149	10,146	9,550	19,696	9,644	9,359	19,003
South Australia ....	1,675	1,537	(b) 3,212	2,607	2,277	4,884	2,914	2,591	5,505
Western Australia ....	6,564	6,135	(b)12,699	8,351	7,925	(b)16,276	9,505	8,934	18,439
Tasmania ....	50	43	93	24	14	38	19	17	36
Northern Territory ....	5,990	5,798	(b)11,788	9,013	8,747	(b)17,760	10,651	10,468	21,119
Australian Capital Territory	100	73	173	78	65	143	52	44	96
AUSTRALIA ....	29,716	28,006	(b)57,722	38,612	36,697	(b)75,309	40,984	39,223	80,207

(a) See letterpress *Aborigines Enumerated* above. (b) Excludes Aborigines 'out of contact' and therefore not enumerated by census collectors. For estimates of the numbers so excluded see letterpress preceding table.

ABORIGINAL POPULATION (a)—STATISTICAL DIVISIONS  
WESTERN AUSTRALIA: CENSUS, 30 JUNE 1966

Statistical Division	Males	Females	Persons	
			Total	Per cent of total
Perth Statistical Division ....	576	587	1,163	6.31
Other Divisions—				
South-West ....	248	240	488	2.65
Southern Agricultural ....	616	592	1,208	6.55
Central Agricultural ....	918	837	1,755	9.52
Northern Agricultural ....	791	796	1,587	8.61
Eastern Goldfields ....	1,079	1,083	2,162	11.73
Central ....	633	513	1,146	6.22
North-West ....	616	543	1,159	6.29
Pilbara ....	984	882	1,866	10.12
Kimberley ....	3,044	2,861	5,905	32.02
Total ....	8,929	8,347	17,276	93.69
WESTERN AUSTRALIA ....	9,505	8,934	18,439	100.00

(a) See letterpress *Aborigines Enumerated* above.

**ABORIGINAL POPULATION (a)—AGE DISTRIBUTION  
WESTERN AUSTRALIA AND AUSTRALIA: CENSUS, 30 JUNE 1966**

Age last birthday (years)	Western Australia				Australia			
	Males	Females	Persons		Males	Females	Persons	
			Total	Per cent of total			Total	Per cent of total
0-4	1,513	1,447	2,960	16.05	6,902	6,700	13,602	16.96
5-9	1,397	1,345	2,742	14.87	6,043	5,858	11,901	14.84
10-14	1,130	1,137	2,267	12.29	4,962	4,941	9,903	12.35
15-19	776	762	1,538	8.34	3,633	3,650	7,283	9.08
20-24	672	591	1,263	6.85	3,057	2,776	5,833	7.27
25-29	553	539	1,092	5.92	2,579	2,560	5,139	6.41
30-34	530	541	1,071	5.81	2,373	2,419	4,792	5.97
35-39	483	414	897	4.86	2,074	2,057	4,131	5.15
40-44	431	380	811	4.40	1,804	1,668	3,472	4.33
45-49	364	314	678	3.68	1,530	1,344	2,874	3.58
50-54	285	254	539	2.92	1,199	1,056	2,255	2.81
55-59	259	202	461	2.50	940	842	1,782	2.22
60-64	202	256	458	2.48	790	812	1,602	2.00
65-69	281	205	486	2.64	886	697	1,583	1.97
70-74	178	113	291	1.58	581	398	979	1.22
75 and over	112	101	213	1.16	388	322	710	0.89
Not stated	339	333	672	3.64	1,243	1,123	2,366	2.95
Total	9,505	8,934	18,439	100.00	40,984	39,223	80,207	100.00
Under 21	4,969	4,820	9,789	53.09	22,208	21,802	44,010	54.87
21-64	3,626	3,362	6,988	37.90	15,678	14,881	30,559	38.10
65 and over	571	419	990	5.37	1,855	1,417	3,272	4.08
Not stated	339	333	672	3.64	1,243	1,123	2,366	2.95
Total	9,505	8,934	18,439	100.00	40,984	39,223	80,207	100.00

(a) See letterpress *Aborigines Enumerated* on page 136.

### ESTIMATES OF POPULATION

For dates other than those of the periodic census of population, estimates are based on records of births and deaths and of movements of population interstate and overseas. Estimates of the population of Australia and of each of the States and Territories are prepared by the Commonwealth Statistician as at 31 March, 30 June, 30 September and 31 December in each year. Because the available records of interstate movement are incomplete, these intercensal estimates as they apply to States and Territories are approximate and are revised when the results of the next succeeding census become known.

#### Mean Population

It is often useful to relate a given characteristic to population in order to express it in *per capita* terms or as 'per head of population'. In some cases it is appropriate to relate a characteristic to the population as at a specified date as, for example, savings bank balances per head of population at 30 June, or motor vehicles per head of population at 31 December.

Where events, as for instance births or deaths, are taking place continuously throughout a period, it is obviously not appropriate to relate these events to the population as at a specific date. It is necessary, therefore, to devise a measure which takes account of the change in population which occurs continuously throughout any period. This measure is known as the *mean population*.

As stated earlier, estimates of population are prepared as at the end of each quarter of the year. The mean population of a quarter might be taken to be the average, or arithmetic mean, of the populations at the beginning and the end of the quarter. If *a*

represents the population at the beginning of a year and  $b, c, d$  and  $e$  the populations at the end of the first, second, third and fourth quarters respectively, these quarterly means would then be  $\frac{1}{2}(a + b)$  for the first quarter,  $\frac{1}{2}(b + c)$  for the second,  $\frac{1}{2}(c + d)$  for the third and  $\frac{1}{2}(d + e)$  for the fourth quarter. The mean population for the year might then be taken as the arithmetic mean of the four quarterly average populations, or

$$\frac{1}{4}\{\frac{1}{2}(a + b) + \frac{1}{2}(b + c) + \frac{1}{2}(c + d) + \frac{1}{2}(d + e)\}$$

which may be more simply expressed as  $\frac{1}{6}(a + 2b + 2c + 2d + e)$ . This method of deriving mean population had been in use in Western Australia prior to its general adoption by the 1903 Conference of Australian Statisticians. It was later superseded by the more precise measure

$$\frac{1}{12}(a + 4b + 2c + 4d + e)$$

which is now commonly used in Australian statistics. In order to establish uniformity with current practice, estimates of mean population for 1901 and later years were revised, where necessary, by the application of this formula.

The estimated mean population of Western Australia is shown in the next table for each financial and calendar year in the period from 1 January 1966 to 30 June 1972.

### Population Estimates

As a result of the repeal, with effect from 10 August 1967, of section 127 of the Australian Constitution, to which reference is made on page 123, current population estimates no longer exclude full-blood Aborigines. Estimates for earlier dates and periods back to the Census of 30 June 1961 have also been prepared on the basis of *total* population (*i.e.* including Aborigines). The final results of the 1966 Census, inclusive of all persons enumerated, were taken into account in the preparation of these estimates.

The following table shows estimates of the population of Western Australia and the elements of population increase during the period from 1 January 1966 to 30 June 1972. Figures for dates and periods subsequent to 30 June 1971 are subject to revision in accordance with the results of the next Census.

POPULATION ESTIMATES (a)

Year	Population at end of year			Increase during year			Mean population		
	Males	Females	Persons	Natural increase (b)	Estimated net migration (c)	Total increase	Males	Females	Persons
YEAR ENDED 30 JUNE									
1967	449,174	430,005	879,179	11,058	20,021	31,079	440,739	422,800	863,539
1968	468,231	446,811	915,042	11,525	24,338	35,863	458,468	438,293	896,761
1969	489,237	465,609	954,846	12,712	27,092	39,804	479,169	456,816	935,985
1970	508,612	482,742	991,354	13,683	22,825	36,508	499,755	475,308	975,063
1971	(d)529,066	(d)501,403	(d)1,030,469	15,476	23,639	39,115	520,000	493,455	1,013,455
1972	539,595	513,587	1,053,182	15,634	7,079	22,713	536,769	509,858	1,046,627
YEAR ENDED 31 DECEMBER									
1966	440,913	423,180	864,093	10,292	15,553	25,845	433,173	416,016	849,189
1967	458,438	438,550	896,988	11,244	21,651	32,895	449,410	430,405	879,815
1968	479,938	457,862	937,800	12,073	28,739	40,812	468,522	447,235	915,757
1969	500,378	476,242	976,620	13,404	25,416	38,820	489,531	466,129	955,660
1970	520,174	493,878	1,014,052	14,075	23,357	37,432	509,875	484,326	994,201
1971	537,781	511,116	1,048,897	16,433	18,412	34,845	529,371	502,243	1,031,614

(a) Revised in accordance with the final results of the 1971 Census.  
(c) Interstate and overseas.

(b) Excess of births registered over deaths registered.

(d) Census figures.

The following table shows the estimated population of each State and Territory of Australia at 31 December of the years 1966 to 1971. The estimates refer to *total* population (see letterpress preceding previous table).

POPULATION ESTIMATES—STATES AND TERRITORIES  
(’000)

State or Territory	Estimated population at 31 December—					
	1966	1967	1968	1969	1970	1971
New South Wales .....	4,267·5	4,329·9	4,401·2	4,490·8	4,573·7	4,652·2
Victoria .....	3,249·8	3,303·6	3,356·8	3,421·2	3,482·0	3,536·9
Queensland .....	1,687·1	1,715·8	1,747·7	1,779·7	1,812·8	1,852·3
South Australia .....	1,103·7	1,115·9	1,132·1	1,149·4	1,170·2	1,185·5
Western Australia .....	864·1	897·0	937·8	976·6	1,014·1	1,048·9
Tasmania .....	373·3	377·8	383·1	387·0	390·3	392·8
Northern Territory .....	59·3	64·4	70·2	75·8	82·8	88·3
Australian Capital Territory .....	100·0	107·8	116·6	126·8	137·6	151·2
AUSTRALIA .....	11,704·8	11,912·3	12,145·6	12,407·2	12,663·5	12,908·2

The following table shows the estimated population of Western Australia at ten-yearly intervals from 1830 to 1970, and annually from 1967 to 1971. The estimates for 1960 and earlier exclude full-blood Aborigines. The figures shown for 1967 and later refer to *total* population, *i.e.* including Aborigines; see letterpress *Population Estimates* on previous page.

## ESTIMATED POPULATION (a)—1830–1971

At 31 December—	Males	Females	Persons	Increase (b)		
				Number	Per cent	Average annual rate (per cent)
1830 .....	877	295	1,172	....	....	....
1840 .....	1,434	877	2,311	1,139	97·18	7·03
1850 .....	3,576	2,310	5,886	3,575	154·69	9·80
1860 .....	9,597	5,749	15,346	9,460	160·72	10·06
1870 .....	15,511	9,624	25,135	9,789	63·79	5·06
1880 .....	16,985	12,576	29,561	4,426	17·61	1·64
1890 .....	28,854	19,648	48,502	18,941	64·07	5·08
1900 .....	110,088	69,879	179,967	131,465	271·05	14·01
1910 .....	157,971	118,861	276,832	96,865	53·82	4·40
1920 .....	176,895	154,428	331,323	54,491	19·68	1·81
1930 .....	232,868	198,742	431,610	100,287	30·27	2·68
1940 .....	248,734	225,342	474,076	42,466	9·84	0·94
1950 .....	294,758	277,891	572,649	98,573	20·79	1·91
1960 .....	372,665	358,368	731,033	158,384	27·66	2·47
1970 (a) .....	520,174	493,878	1,014,052	283,019	38·71	3·33
1967 .....	458,438	438,550	896,988	32,895	3·81	....
1968 .....	479,938	457,862	937,800	40,812	4·55	....
1969 .....	500,378	476,242	976,620	38,820	4·14	....
1970 .....	520,174	493,878	1,014,052	37,432	3·83	....
1971 .....	537,781	511,116	1,048,897	34,845	3·44	....
Five years ended 31 December 1971 .....				184,804	21·39	3·95

(a) Estimates for 1960 and earlier exclude full-blood Aborigines; those shown for 1967 and later refer to *total* population, *i.e.* including Aborigines. (b) Decennial increases during the period 1830–1970; annual increases from 1967 to 1971.

## Chapter IV—continued

### Part 2—Births, Deaths and Marriages

*NOTE. Reference is made on page 123 to the repeal, with effect from 10 August 1967, of section 127 of the Australian Constitution. As a consequence of this repeal, all vital statistics, which previously excluded births, deaths and marriages of full-blood Aborigines, now include events among the total population. Statistics for 1966 and later years have been compiled on this basis.*

*A line drawn across a column in a table between two consecutive figures, indicates a break in continuity in the series. Figures above the line exclude full-blood Aborigines; those below the line refer to events among the total population, i.e. including Aborigines.*

---

#### THE REGISTRATION SYSTEM

Compulsory registration of births, deaths and marriages in Western Australia was originally provided for by legislation of the year 1841. The Statutes currently in force are the *Registration of Births, Deaths and Marriages Act, 1961-1965* (State) and the *Marriage Act 1961-1966* (Commonwealth). For administrative purposes, the State is divided into twenty-seven Registry Districts, each having a District Registrar. Particulars of births, deaths and marriages reported to the District Registrars are sent to the Registrar-General at Perth, where a central registry office has been maintained since 1841. Local registers are kept at each district office.

Births are required to be registered within sixty days of the event, and must be notified by the father, the mother or the occupier of the premises where the birth took place. Special provisions and penalties apply to notification and registration after the expiration of the sixty-day period.

A stillbirth is required to be registered both as a birth and a death. From 1 January 1968 the term 'stillbirth', for registration purposes, refers to a child of at least twenty weeks' gestation not born alive. Previously it was restricted to cases where the gestation period was at least twenty-eight weeks.

Deaths are required to be registered within fourteen days. Notification must be given by the person who disposes of the body or by the occupier of the premises where the death occurred. As in the case of births, special provisions and penalties exist for the late registration of a death.

Marriages are celebrated according to the provisions of the *Marriage Act 1961-1966* (Commonwealth) by ministers of religion registered under the Act, or by District Registrars. Ministers are required to lodge a marriage certificate with the District Registrar for registration within fourteen days of the celebration of a marriage. A penalty fee is provided for registrations after fourteen days from the date of marriage.

Statistics of births, deaths and marriages are prepared from the registration documents.

The following table shows, for the years 1969, 1970 and 1971 the number of births, deaths and marriages registered in Western Australia, classified according to Statistical Divisions. The figures do not necessarily represent the number of such events which actually occurred in a particular Statistical Division during each year, since births are allocated to the usual place of residence of the mother, deaths to the usual place of residence of the deceased, and marriages to the usual place of residence of the bridegroom. Further, the statistics are compiled according to date of registration and not date of occurrence.

**BIRTHS, DEATHS AND MARRIAGES**  
**NUMBERS REGISTERED—STATISTICAL DIVISIONS (a) (b) (c)**

Statistical Division (a)	Births (d)			Deaths (e)			Marriages		
	1969	1970	1971	1969	1970	1971	1969	1970	1971
Perth Statistical Division ....	13,094	13,908	15,843	5,185	5,345	5,591	6,441	6,640	7,001
Other Divisions—									
South-West .....	1,522	1,603	1,742	564	630	627	568	655	604
Southern Agricultural .....	1,161	1,128	1,183	339	359	324	380	422	348
Central Agricultural .....	1,494	1,300	1,348	335	347	353	509	478	377
Northern Agricultural .....	1,192	1,135	1,175	229	245	241	395	348	348
Eastern Goldfields .....	1,085	1,170	1,249	319	334	348	376	375	340
Central .....	158	164	133	59	46	55	28	24	22
North-West .....	271	273	331	52	32	41	80	76	106
Pilbara .....	377	485	735	87	68	96	127	135	166
Kimberley .....	400	452	500	181	137	130	89	74	70
Total .....	7,660	7,710	8,396	2,165	2,198	2,215	2,552	2,587	2,381
WESTERN AUSTRALIA ....	20,754	21,618	24,239	7,350	7,543	7,806	8,993	9,227	9,382

(a) For component local government areas, see map at back of Year Book. (b) See letterpress immediately preceding table. (c) See NOTE at top of previous page. (d) Live births. (e) Stillbirths are not included; see next table.

## BIRTHS

Statistics of births in each of the five years 1967 to 1971 in the Perth Statistical Division, the rest of the State, and in Western Australia as a whole are shown in the following table. Further details of stillbirths appear on page 152.

### BIRTHS REGISTERED (a)

Year	Live births					Stillbirths (d)
	Males (b)	Females (b)	Persons (b)	Ex-nuptial births (c)	Multiple births (c)	

#### PERTH STATISTICAL DIVISION

1967 ....	5,681	5,271	10,952	917	242	118
1968 ....	6,190	5,828	12,018	990	(e) 235	155
1969 ....	6,697	6,397	13,094	1,159	253	165
1970 ....	7,124	6,784	13,908	1,252	278	184
1971 ....	8,075	7,768	15,843	1,530	239	194

#### OTHER DIVISIONS

1967 ....	3,641	3,430	7,071	1,027	(f) 155	70
1968 ....	3,880	3,643	7,523	1,024	(e) 169	88
1969 ....	3,898	3,762	7,660	1,072	(e) 152	85
1970 ....	4,048	3,662	7,710	1,064	(e) 132	111
1971 ....	4,423	3,973	8,396	1,190	(f) 167	104

#### WESTERN AUSTRALIA

1967 ....	9,322	8,701	18,023	1,944	(f) 397	188
1968 ....	10,070	9,471	19,541	2,014	(f) 404	243
1969 ....	10,595	10,159	20,754	2,231	(e) 405	250
1970 ....	11,172	10,446	21,618	2,316	(e) 410	295
1971 ....	12,498	11,741	24,239	2,720	(f) 406	298

(a) See NOTE on previous page. (b) Includes ex-nuptial births and multiple births. (c) Figures represent the number of children live-born. (d) Figures for 1968 and later refer to stillbirths where the child was of at least 20 weeks' gestation; those for 1967 refer to cases where the gestation period was at least 28 weeks. (e) Includes one case of triplets. (f) Includes two cases of triplets.

The following table shows the number of nuptial confinements during 1971, classified according to age group of mother and number of previous issue.

#### NUPTIAL CONFINEMENTS—AGE OF MOTHER AND PREVIOUS ISSUE, 1971 (a)

Previous issue (number)	Age of mother (years)							Total married mothers	
	Under 20	20-24	25-29	30-34	35-39	40-44	45 and over	Number	Per cent
0	1,477	4,172	1,838	358	153	25	2	(b) 8,026	37·60
1	342	2,958	2,428	624	130	24	2	6,508	30·49
2	22	878	1,754	900	220	42	2	3,818	17·89
3	2	162	639	644	242	47	....	1,736	8·13
4	....	34	168	272	141	34	1	650	3·05
5	....	8	50	120	86	23	....	287	1·34
6	....	1	22	52	55	24	4	158	0·74
7	....	....	8	25	29	8	....	70	0·33
8	....	....	1	9	24	6	....	40	0·19
9	....	....	1	4	13	10	....	28	0·13
10 or more	....	....	....	3	12	7	....	22	0·10
Total married mothers	1,843	8,213	6,909	3,011	1,105	250	11	(b) 21,343	100·00

(a) See NOTE on page 140. Figures represent cases in which at least one child was live-born. (b) Includes one confinement for which the age of mother was not stated.

The following table shows the number of nuptial confinements during 1971, classified according to the relative ages of parents.

#### NUPTIAL CONFINEMENTS—RELATIVE AGES OF PARENTS, 1971 (a)

Age of father (years)	Age of mother (years)							Total fathers	
	Under 20	20-24	25-29	30-34	35-39	40-44	45 and over	Number	Per cent
Under 20	336	37	2	....	....	....	....	375	1·76
20-24	1,246	3,565	276	13	4	....	....	5,104	23·91
25-29	213	3,679	3,462	284	25	2	....	(b) 7,666	35·92
30-34	40	772	2,485	1,401	117	7	1	4,823	22·60
35-39	5	108	522	931	479	35	1	2,081	9·75
40-44	3	39	117	308	348	108	4	927	4·34
45-49	....	9	35	57	107	69	4	281	1·32
50 and over	....	3	10	16	25	29	1	84	0·39
Not stated	....	1	....	1	....	....	....	2	0·01
Total married mothers—									
Number	1,843	8,213	6,909	3,011	1,105	250	11	(b) 21,343	....
Per cent	8·64	38·48	32·37	14·11	5·18	1·17	0·06	....	100·00

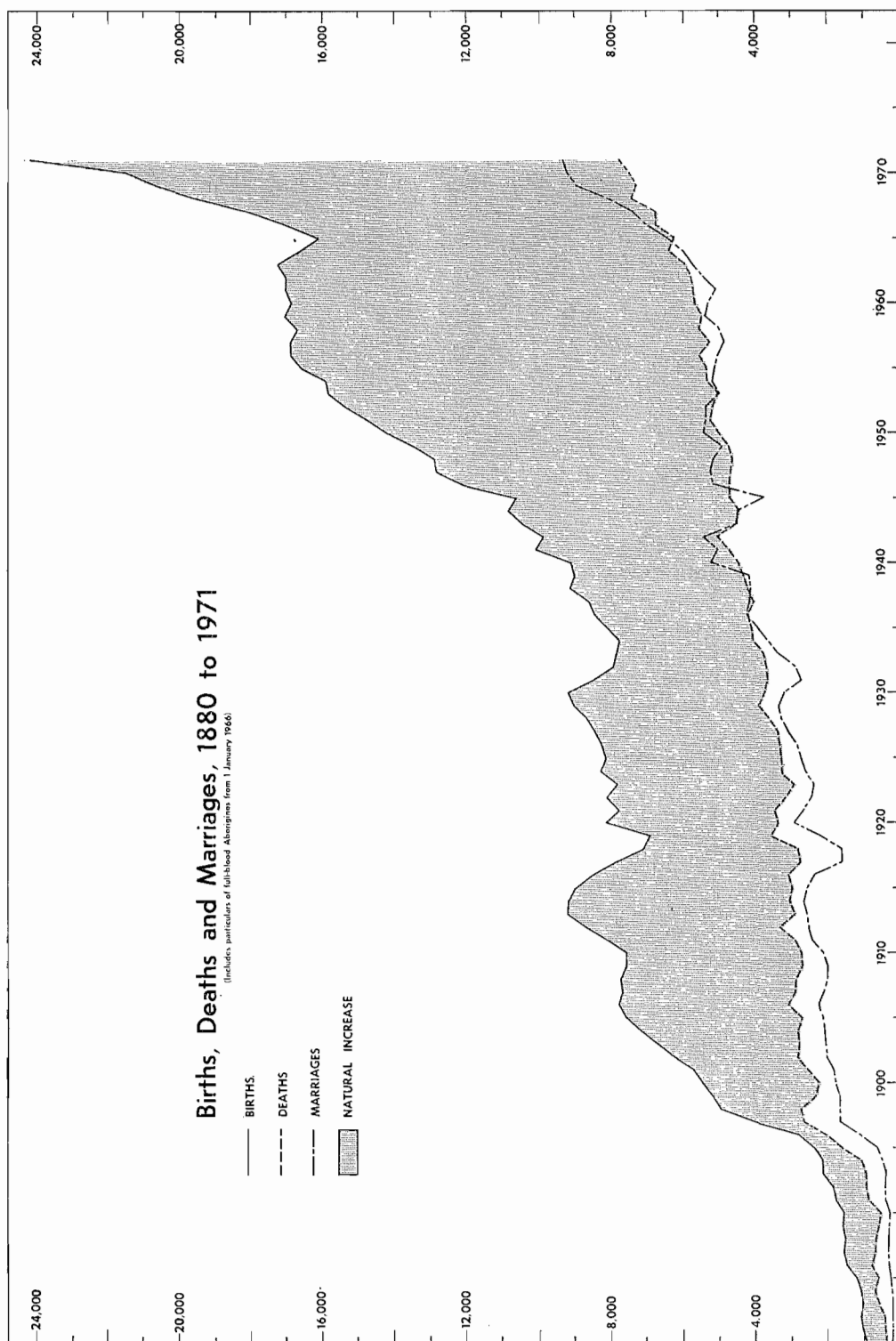
(a) See NOTE on page 140. Figures represent cases in which at least one child was live-born. (b) Includes one confinement for which the age of mother was not stated.

The ages of mothers of ex-nuptial children born during each of the years 1967 to 1971 are shown in the following table.

#### EX-NUPTIAL BIRTHS—AGE OF MOTHER (a)

Age of mother (years)	1967	1968	1969	1970	1971
Under 14	5	5	4	7	6
14	7	15	11	15	19
15	44	49	34	55	69
16	117	103	123	128	166
17	177	173	197	200	257
18	221	197	217	227	287
19	194	215	192	241	251
20	170	144	205	215	240
21-24	383	446	552	550	639
25-29	291	319	313	311	397
30-34	161	178	207	211	245
35-39	117	115	115	108	94
40-44	40	45	41	39	40
45 and over	8	3	8	5	9
Not stated	9	7	12	4	1
Total, ex-nuptial births	1,944	2,014	2,231	2,316	2,720

(a) See NOTE on page 140.



**Crude Birth Rates.** The crude birth rate in any period may be defined as the number of live births occurring during the period for every thousand of the mean population.

The average annual rates for each five-year period in the fifty years from 1921 to 1970 and the rates for single years from 1962 to 1971, for Western Australia and Australia as a whole, are shown in the following table.

CRUDE BIRTH RATES (a)  
WESTERN AUSTRALIA AND AUSTRALIA

Period	Average annual rate (b)		Year	Annual rate (b)	
	Western Australia	Australia		Western Australia	Australia
1921-25 ....	22.85	23.86	1962 ....	22.58	22.15
1926-30 ....	21.54	20.98	1963 ....	22.23	21.61
1931-35 ....	18.36	16.94	1964 ....	20.93	20.60
1936-40 ....	19.16	17.52	1965 ....	19.85	19.65
1941-45 ....	21.72	20.28	1966 ....	20.25	19.28
1946-50 ....	25.24	23.39	1967 ....	20.48	19.42
1951-55 ....	25.37	22.86	1968 ....	21.34	20.04
1956-60 ....	24.20	22.59	1969 ....	21.72	20.38
1961-65 ....	21.71	21.34	1970 ....	21.74	20.55
1966-70 ....	21.14	19.95	1971 ....	23.50	21.62

(a) See NOTE on page 140. (b) Rates for the years 1966 to 1970 have been revised in accordance with the final results of the 1971 Census.

In each year of the period under review, Western Australia's crude birth rate has been higher than that of the Commonwealth with the exception of the early 1920s.

In Western Australia, the rate showed a marked and almost continuous decrease from the beginning of the century to the depression of thirty years later when the unprecedentedly low rate of 17.64 was recorded in 1934 (see Graph—*Rates of Birth, Death and Marriage*). In the years since then a fairly well-sustained improvement was evident until 1952 when the rate reached 25.66, its highest level since 1917. Since 1952 there has been a decline and in 1965 the rate was 19.85, the lowest since 1940. In 1971 the rate increased to 23.50, the highest recorded since 1959.

**Age-specific Birth Rates.** As a measure of fertility, the crude birth rate has the advantage of simplicity in calculation. The data necessary for its computation are usually readily available from published statistics, and it is therefore useful in comparing the fertility of the populations of States and countries for which no additional data are available. However, it is of limited use, since it does not take into account the important factors of age and sex composition of the population. Age-specific birth rates, which do have regard to these factors, therefore provide a better measure of fertility. Age-specific birth rates represent the number of births to women of specified ages per thousand women of those particular ages, and thus take cognisance of the variations in fertility experienced by women at the successive stages of their child-bearing life.

AGE-SPECIFIC BIRTH RATES (a)—WESTERN AUSTRALIA

Year	Age group (years)						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
1947 ....	32.63	187.14	206.24	146.72	84.97	28.63	2.06
1954 ....	42.74	231.09	217.77	135.74	71.71	23.61	1.52
1961 ....	47.07	246.94	231.92	127.38	61.82	20.55	1.17
1966 ....	53.77	204.07	198.03	102.09	45.68	12.98	1.13

(a) Number of live births registered per 1,000 women in each age group. Rates are based on census results and exclude particulars of full-blood Aborigines (see NOTE on page 140).

For purposes of comparison with Western Australian experience, age-specific birth rates for Australia as a whole are given in the following table.

AGE-SPECIFIC BIRTH RATES (a)—AUSTRALIA

Year	Age group (years)						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
1947 ....	32.06	166.18	186.60	129.99	75.02	23.52	1.81
1954 ....	39.19	197.13	194.02	121.76	64.43	20.16	1.47
1961 ....	47.35	225.81	221.21	131.11	63.38	19.17	1.41
1966 ....	48.89	173.07	183.88	105.12	50.62	14.16	1.04

(a) Number of live births registered per 1,000 women in each age group. Rates are based on census results and exclude particulars of full-blood Aborigines (see NOTE on page 140).

**Gross and Net Reproduction Rates.** The gross reproduction rate is derived from fertility rates representing the number of *female* births to women of specified ages per thousand women of those particular ages. It provides a measure of the number of female children who would be born, on the average, to every woman assuming that she lives through the whole of the child-bearing period and that the basic fertility rates remain unaltered throughout.

The gross reproduction rate assumes that all females survive to the end of their child-bearing capacity. A more accurate measure, which takes into account the effect of mortality among women during this period is the net reproduction rate. This rate represents the average number of female children who would be born to women during their lifetime if they were subject in each succeeding year of life to the fertility and mortality rates on which the calculation is based. The net reproduction rate is a measure of the number of women who, in the next generation, will replace the women of reproductive age in the current generation. It provides a useful indication of likely future population trends. A rate remaining stationary at unity indicates an ultimately static population. If a rate greater than unity is maintained, an ultimate increase of population will result, while a continuing rate less than unity will lead to an ultimate decline.

GROSS AND NET REPRODUCTION RATES (a)  
WESTERN AUSTRALIA AND AUSTRALIA

Year	Gross reproduction rate		Net reproduction rate	
	Western Australia	Australia	Western Australia	Australia
1947 ....	1.683	1.494	(b) 1.595	(b) 1.416
1954 ....	1.772	1.559	(c) 1.704	(c) 1.499
1961 ....	1.785	1.728	(d) 1.730	(d) 1.672
1966 ....	1.490	1.400	(d) 1.445	(d) 1.355

(a) Rates are based on census results and exclude particulars of full-blood Aborigines (see NOTE on page 140). (b) Based on 1946-48 mortality experience. (c) Based on 1953-55 mortality experience. (d) Based on 1960-62 mortality experience.

## DEATHS

Statistics of deaths in each of the five years 1967 to 1971 in the Perth Statistical Division, the rest of the State, and in Western Australia as a whole appear in the following table. Infant deaths (*i.e.* those occurring in the first year of life) are also shown.

## DEATHS REGISTERED (a)

Year	Deaths (b)			Infant deaths (c)		
	Males	Females	Persons	Males	Females	Persons

## PERTH STATISTICAL DIVISION

1967 ....	2,748	2,107	4,855	84	64	148
1968 ....	2,941	2,323	5,264	115	91	206
1969 ....	2,936	2,249	5,185	133	107	240
1970 ....	3,006	2,339	5,345	140	111	251
1971 ....	3,151	2,440	5,591	154	115	269

## OTHER DIVISIONS

1967 ....	1,208	716	1,924	105	61	166
1968 ....	1,397	807	2,204	121	71	192
1969 ....	1,377	788	2,165	117	96	213
1970 ....	1,386	812	2,198	109	99	208
1971 ....	1,385	830	2,215	111	84	195

## WESTERN AUSTRALIA

1967 ....	3,956	2,823	6,779	189	125	314
1968 ....	4,338	3,130	7,468	236	162	398
1969 ....	4,313	3,037	7,350	250	203	453
1970 ....	4,392	3,151	7,543	249	210	459
1971 ....	4,536	3,270	7,806	265	199	464

(a) See NOTE on page 140. (b) Including infant deaths. (c) Deaths occurring in the first year of life.

**Crude Death Rates.** The crude death rate is perhaps the most common measure of mortality, and is derived by relating the deaths occurring in a period to the mean population for that period. It is usually expressed as number of deaths per thousand of mean population.

The rates for Western Australia and for the Commonwealth in the period 1921 to 1971 are compared in the following table.

CRUDE DEATH RATES (a)  
WESTERN AUSTRALIA AND AUSTRALIA

Period	Average annual rate (b)		Year	Annual rate (b)	
	Western Australia	Australia		Western Australia	Australia
1921-25 ....	9.17	9.52	1962	7.69	8.71
1926-30 ....	8.91	9.26	1963	7.68	8.70
1931-35 ....	8.83	9.00	1964	8.06	9.04
1936-40 (c) ..	9.22	9.63	1965	7.70	8.79
1941-45 (c) ....	9.86	9.96	1966	8.13	9.01
1946-50 (c) ....	9.23	9.74	1967	7.71	8.70
1951-55 ....	8.49	9.25	1968	8.16	9.11
1956-60 ....	7.90	8.78	1969	7.69	8.68
1961-65 ....	7.78	8.75	1970	7.59	9.02
1966-70 ....	7.84	8.90	1971	7.57	8.66

(a) See NOTE on page 140. (b) Rates for the years 1966 to 1970 have been revised in accordance with the final results of the 1971 Census. (c) Excludes deaths of members of defence forces from September 1939 to June 1947.

In the early years of the century, the Western Australian rate was higher than that for Australia as a whole, but fell below the Australian average in 1909. Since that time, the rate for Western Australia has, with very few exceptions, remained lower than that for the Commonwealth.

Western Australia's crude death rate for the year 1902 was 13.79 per thousand of the mean population but by 1931 it had fallen to 8.51 (see Graph—*Rates of Birth, Death and Marriage*). After that year, the rate increased until it reached 10.65 in 1942. Since then there was a general decline until 1963 when the rate was 7.68. The rate for 1971 was 7.57 per thousand of mean population, the lowest ever recorded in Western Australia.

**Standardised Death Rates.** The crude death rate expresses simply the number of deaths occurring in a population during any period as a proportion of the mean population for that period. Although this rate is useful as a measure of the absolute level of mortality, its value is necessarily restricted when comparing the mortality in different communities in the same period, or in one community at different times.

The effect on the crude death rate of the presence in a community of a high proportion of young people or of aged people, or of a high or low masculinity, will be readily appreciated. To devise an adequate measure of comparative mortality, it is therefore necessary to select a 'standard' population to which the varying mortality experiences may be referred. A standard population compiled by the International Statistical Institute, based upon the age and sex distribution of the population of nineteen European countries at their censuses nearest to the year 1900, has been used as the basis of the standardised death rates for Western Australia and Australia given in the next paragraph. The rate is computed by applying to each sex and age group in the standard population, the death rates actually recorded in the corresponding groups of the State and Australian populations. The sum of these results represents the number of deaths which would have occurred in the standard population if it had been exposed to the same risks of mortality. The standardised death rate is derived by expressing this number in terms of 'per thousand of the standard population'.

For the Census years 1921, 1933, 1947, 1954, 1961 and 1966 the standardised death rates for Western Australia were 11.88, 8.74, 7.28, 6.71, 6.02 and 6.25, and the corresponding rates for Australia as a whole were 10.58, 8.62, 7.34, 6.90, 6.27 and 6.53. These rates have been compiled on a basis which excludes full-blood Aborigines; see *NOTE* on page 140.

**Causes of Death.** Statistics of causes of death provide important numerical facts by which to evaluate the varying health conditions and needs of different countries. In order to enable valid international comparisons, it is necessary that each country present its statistics of causes of death in a uniform manner. The first classification of causes of death to be adopted internationally was that compiled by Dr J. Bertillon at the request of the International Statistical Institute meeting in Vienna in 1891. Subsequently this classification was periodically revised by the Institute in collaboration with the League of Nations Health Organization. More recently, revisions have been carried out by a Committee of the World Health Organization.

#### PRINCIPAL CAUSES OF DEATH, 1971 (a)

International number	Cause of death (b) (c)	Males	Females	Persons	Per cent of all deaths	Rate (d)
000-136	Infective and parasitic diseases—					
010-012	Tuberculosis of respiratory system ....	13	....	13	0.2	1.3
	Other infective and parasitic diseases ....	54	45	99	1.3	9.6
140-239	Neoplasms—					
140-199	Malignant—					
150-159	Digestive organs and peritoneum ....	238	192	430	5.5	41.7
162	Trachea, bronchus and lung ....	292	47	339	4.3	32.9
174	Breast ....	....	120	120	1.5	11.6
180-189	Genito-urinary organs ....	139	92	231	3.0	22.4
	Other ....	111	79	190	2.4	18.4
200-209	Lymphatic and haematopoietic tissue—					
204-207	Leukaemia and aleukaemia ....	24	25	49	0.6	4.7
	Other ....	32	28	60	0.8	5.8
210-239	Benign and unspecified ....	9	8	17	0.2	1.6
240-279	Endocrine, nutritional and metabolic diseases—					
250	Diabetes mellitus ....	48	70	118	1.5	11.4
	Other ....	29	27	56	0.7	5.4
280-289	Diseases of blood and blood-forming organs ....	6	11	17	0.2	1.6
290-315	Mental disorders ....	46	30	76	1.0	7.4

## PRINCIPAL CAUSES OF DEATH, 1971 (a)—continued

International number	Cause of death (b) (c)	Males	Females	Persons	Per cent of all deaths	Rate (d)
320-389	Diseases of the nervous system and sense organs ....	65	49	114	1.5	11.1
390-458	Diseases of the circulatory system—					
393-398	Rheumatic heart disease ....	37	36	73	0.9	7.1
410-414	Ischaemic heart disease ....	1,277	843	2,120	27.2	205.5
430-438	Cerebrovascular disease ....	419	531	950	12.2	92.1
	Other ....	338	300	638	8.2	61.8
460-519	Diseases of the respiratory system—					
480-486	Pneumonia ....	69	58	127	1.6	12.3
490-493	Bronchitis, emphysema and asthma ....	254	59	313	4.0	30.3
	Other ....	44	34	78	1.0	7.6
520-577	Diseases of the digestive system ....	91	79	170	2.2	16.5
580-629	Diseases of the genito-urinary system ....	86	57	143	1.8	13.9
630-678	Complications of pregnancy, childbirth and the puerperium ....		3	3		0.3
680-709	Diseases of the skin and subcutaneous tissue ....	3	4	7	0.1	0.7
710-738	Diseases of the musculoskeletal system and connective tissue ....	15	22	37	0.5	3.6
740-759	Congenital anomalies ....	56	72	128	1.6	12.4
760-779	Certain causes of perinatal morbidity and mortality ....	145	97	242	3.1	23.5
780-796	Ill-defined conditions ....	64	45	109	1.4	10.6
800-999	Accidents, poisonings and violence—					
810-823	Motor vehicle accidents ....	239	84	323	4.1	31.3
850-877	Accidental poisonings ....	6	6	12	0.2	1.2
880-887	Accidental falls ....	34	42	76	1.0	7.4
950-959	Suicide and self-inflicted injury ....	119	34	153	2.0	14.8
	Other ....	134	41	175	2.2	17.0
	All causes ....	4,536	3,270	7,806	100.0	756.7

(a) See NOTE on page 140. (b) Classified in accordance with the *International Statistical Classification of Diseases, Injuries, and Causes of Death* (Eighth Revision), operative from 1 January 1968. (c) Defined, in part, as the disease or injury which initiated the train of morbid events leading directly to death. (d) Per 100,000 of mean population.

The figures in the previous table have been compiled on the basis of the *International Statistical Classification of Diseases, Injuries, and Causes of Death* (Eighth Revision, 1965), operative from 1 January 1968. The term 'cause of death', as used in this table and elsewhere in this Part, means '(a) the disease or injury which initiated the train of morbid events leading directly to death, or (b) the circumstances of the accident or violence which produced the fatal injury'.

The principal causes of death in age groups and the number and proportion (per cent) of total deaths from specified causes are shown in the following table.

## PRINCIPAL CAUSES OF DEATH—AGE GROUPS, 1971 (a)

International number	Age group and cause of death (b)	Deaths from specified cause			
		In age group		At all ages	
		Number	Per cent	Number	Per cent (c)
	Under 1 year ....	464	100.0	....	....
000-136	Infective and parasitic diseases ....	31	6.7	112	27.7
480-486	Pneumonia ....	42	9.1	127	33.1
740-759	Congenital anomalies ....	90	19.4	128	70.3
760-769	Maternal causes, including difficult labour ....	107	23.1	107	100.0
770	Conditions of placenta ....	21	4.5	22	95.5
776	Anoxic and hypoxic conditions n.e.c. ....	60	12.9	60	100.0
	Other causes ....	113	24.4	....	....
	1-4 years ....	93	100.0	....	....
000-136	Infective and parasitic diseases ....	19	20.4	112	17.0
140-209	Malignant neoplasms (d) ....	8	8.6	1,419	0.6
480-486	Pneumonia ....	7	7.5	127	5.5
740-759	Congenital anomalies ....	14	15.1	128	10.9
800-949	Accidents ....	30	32.3	568	5.3
	Other causes ....	15	16.1	....	....
	5-14 years ....	87	100.0	....	....
140-209	Malignant neoplasms (d) ....	13	14.9	1,419	0.9
480-486	Pneumonia ....	1	1.1	127	0.8
740-759	Congenital anomalies ....	7	8.0	128	5.5
800-949	Accidents ....	43	49.4	568	7.6
	Other causes ....	23	26.4	....	....

## PRINCIPAL CAUSES OF DEATH—AGE GROUPS, 1971 (a)—continued

International number	Age group and cause of death (b)	Deaths from specified cause			
		In age group		At all ages	
		Number	Per cent	Number	Per cent (c)
	<b>15-19 years</b> ....	<b>94</b>	<b>100.0</b>	....	....
140-209	Malignant neoplasms (d) ....	8	8.5	1,419	0.6
740-759	Congenital anomalies ....	1	1.1	128	0.8
800-999	Accidents, poisonings, violence—				
810-823	Motor vehicle accidents ....	47	50.0	323	14.6
950-959	Suicide ....	8	8.5	153	5.2
	Other ....	13	13.8	263	4.9
	Other causes ....	17	18.1	....	....
	<b>20-24 years</b> ....	<b>119</b>	<b>100.0</b>	....	....
140-209	Malignant neoplasms (d) ....	7	5.9	1,419	0.5
800-999	Accidents, poisonings, violence—				
810-823	Motor vehicle accidents ....	50	42.0	323	15.5
950-959	Suicide ....	13	10.9	153	8.5
	Other ....	20	16.8	263	7.6
	Other causes ....	29	24.4	....	....
	<b>25-34 years</b> ....	<b>174</b>	<b>100.0</b>	....	....
140-209	Malignant neoplasms (d) ....	24	13.8	1,419	1.7
390-458	Diseases of circulatory system ....	14	8.0	3,781	0.4
740-759	Congenital anomalies ....	1	0.6	128	0.8
800-999	Accidents, poisonings, violence—				
810-823	Motor vehicle accidents ....	55	31.6	323	17.0
950-959	Suicide ....	29	16.7	153	19.0
	Other ....	20	11.5	263	7.6
	Other causes ....	31	17.8	....	....
	<b>35-44 years</b> ....	<b>269</b>	<b>100.0</b>	....	....
140-209	Malignant neoplasms (d) ....	48	17.8	1,419	3.4
393-398, 402 } 404, 410-429 }	Heart diseases ....	50	18.6	2,521	2.0
430-438	Cerebrovascular diseases ....	11	4.1	950	1.2
460-519	Diseases of respiratory system ....	12	4.5	518	2.3
800-999	Accidents, poisonings, violence—				
810-823	Motor vehicle accidents ....	31	11.5	323	9.6
950-959	Suicide ....	36	13.4	153	23.5
	Other ....	26	9.7	263	9.9
	Other causes ....	55	20.4	....	....
	<b>45-54 years</b> ....	<b>559</b>	<b>100.0</b>	....	....
140-209	Malignant neoplasms (d) ....	160	28.6	1,419	11.3
393-398, 402 } 404, 410-429 }	Heart diseases ....	167	29.9	2,521	6.6
430-438	Cerebrovascular diseases ....	41	7.3	950	4.3
460-519	Diseases of respiratory system ....	20	3.6	518	3.9
800-999	Accidents, poisonings, violence—				
810-823	Motor vehicle accidents ....	32	5.7	323	9.9
950-959	Suicide ....	26	4.7	153	17.0
	Other ....	25	4.5	263	9.5
	Other causes ....	88	15.7	....	....
	<b>55-64 years</b> ....	<b>1,197</b>	<b>100.0</b>	....	....
140-209	Malignant neoplasms (d) ....	342	28.6	1,419	24.1
393-398, 402 } 404, 410-429 }	Heart diseases ....	420	35.1	2,521	16.7
430-438	Cerebrovascular diseases ....	102	8.5	950	10.7
460-519	Diseases of respiratory system ....	69	5.8	518	13.3
800-999	Accidents, poisonings, violence—				
810-823	Motor vehicle accidents ....	28	2.3	323	8.7
	Other ....	54	4.5	416	13.0
	Other causes ....	182	15.2	....	....
	<b>65-74 years</b> ....	<b>1,943</b>	<b>100.0</b>	....	....
140-209	Malignant neoplasms (d) ....	438	22.5	1,419	30.9
250	Diabetes ....	46	2.4	118	39.0
393-398, 402 } 404, 410-429 }	Heart diseases ....	778	40.0	2,521	30.9
430-438	Cerebrovascular diseases ....	252	13.0	950	26.5
460-519	Diseases of respiratory system ....	156	8.0	518	30.1
800-999	Accidents, poisonings, violence—				
810-823	Motor vehicle accidents ....	26	1.3	323	8.0
	Other ....	29	1.5	416	7.0
	Other causes ....	218	11.2	....	....

PRINCIPAL CAUSES OF DEATH—AGE GROUPS, 1971 (a)—*continued*

International number	Age group and cause of death (b)	Deaths from specified cause			
		In age group		At all ages	
		Number	Per cent	Number	Per cent (c)
	75 years and over ....	(e) 2,807	100.0	....	....
140-209	Malignant neoplasms (d) ....	368	13.1	1,419	25.9
393-398, 402	Heart diseases ....	(e) 1,089	38.8	2,521	43.2
404, 410-429	Cerebrovascular diseases ....	538	19.2	950	56.6
430-438	Diseases of arteries, arterioles and capillaries ....	182	6.5	250	72.8
440-448	Diseases of respiratory system ....	192	6.8	518	37.1
460-519	Accidents, poisonings, violence—				
800-999	Accidental falls ....	47	1.7	76	61.8
880-887	Other ....	38	1.4	663	5.7
	Other causes ....	353	12.6	....	....

n.e.c. denotes 'not elsewhere classified'.

(a) See NOTE on page 140. (b) Classified in accordance with the *International Statistical Classification of Diseases, Injuries, and Causes of Death* (Eighth Revision), operative from 1 January 1968. (c) Deaths in the specified age group as a percentage of total deaths for a particular cause. (d) Including neoplasms of lymphatic and haematopoietic tissue. (e) Includes one death for which age was not stated.

**Infant Deaths.** The term 'infant death' refers to a death which occurs before the completion of the first year of life. In the following table, infant deaths registered in Western Australia during each of the five years to 1971 are classified according to age at death.

## INFANT MORTALITY (a)—AGES AT DEATH

Year	Days					Total under 28 days	Months			Total under 1 year		
	Under 1	1-6	7-13	14-20	21-27		Under 3	3-5	6-11			
MALES												
1967	....	....	83	54	6	7	5	155	172	5	12	189
1968	....	....	110	51	8	....	4	173	199	12	25	236
1969	....	....	93	68	10	8	3	182	201	17	32	250
1970	....	....	91	62	18	5	3	179	208	19	22	249
1971	....	....	103	57	8	5	1	174	203	28	34	265
FEMALES												
1967	....	....	48	23	8	2	....	81	92	17	16	125
1968	....	....	67	35	5	5	5	117	130	19	13	162
1969	....	....	76	56	3	4	1	140	152	29	22	203
1970	....	....	80	39	9	3	5	136	158	18	34	210
1971	....	....	80	31	14	4	2	131	145	29	25	199
PERSONS												
1967	....	....	131	77	14	9	5	236	264	22	28	314
1968	....	....	177	86	13	5	9	290	329	31	38	398
1969	....	....	169	124	13	12	4	322	353	46	54	453
1970	....	....	171	101	27	8	8	315	366	37	56	459
1971	....	....	183	88	22	9	3	305	348	57	59	464

(a) See NOTE on page 140.

**Infant Mortality Rates.** The infant mortality rate expresses the relationship between deaths of infants and the live births occurring in a period, and is stated in terms of number of deaths under one year of age per thousand live births.

The rates for Western Australia and for the Commonwealth in the period 1921 to 1971 are shown in the following table.

**INFANT MORTALITY RATES (a)**  
**WESTERN AUSTRALIA AND AUSTRALIA**

Period	Average annual rate		Year	Annual rate	
	Western Australia (b)	Australia		Western Australia (b)	Australia
1921-25 ....	59.1	57.88	1962	22.3	20.41
1926-30 ....	49.3	51.99	1963	20.4	19.55
1931-35 ....	40.8	41.27	1964	19.7	19.06
1936-40 ....	39.7	38.81	1965	21.7	18.47
1941-45 ....	33.3	34.97			
			1966	19.9	18.73
1946-50 ....	28.1	26.98			
1951-55 ....	24.4	23.34	1967	17.4	18.26
1956-60 ....	21.4	21.05	1968	20.4	17.78
1961-65 ....	20.7	19.42	1969	21.8	17.92
			1970	21.2	17.88
1966-70 ....	20.2	18.10	1971	19.1	17.29

(a) See NOTE on page 140. (b) Rates for Western Australia are based on too few deaths to warrant calculation to the second place of decimals.

In the first decade of the century, the average annual rate (106.1) in Western Australia was considerably above the Commonwealth average of 86.83, and was the highest among the Australian States. Since then both the Western Australian and the Australian rates have shown a remarkable decrease. Despite the improvement in Western Australia, the experience of recent years generally reveals a less favourable situation than for the Commonwealth as a whole. In the five years ended 1971, Western Australia's average annual rate was 20.0 compared with the Australian rate of 17.80 and was greater than that for any other State.

**Causes of Infant Deaths.** The causes of infant deaths registered during the year 1971 are set out in the following table.

**INFANT MORTALITY—CAUSES OF DEATH, 1971 (a)**

International number	Cause of death (b)	Males	Females	Persons
	Causes mainly of prenatal and natal origin—			
740-759	Congenital anomalies	42	48	90
760-769	Attributed to conditions of the mother—			
762	Toxaemia of pregnancy	5	6	11
764-768	Difficult labour	14	5	19
769	Other complications of pregnancy and childbirth	34	26	60
	Other	8	9	17
770	Conditions of placenta	13	8	21
771	Conditions of umbilical cord	2	2	4
774, 775	Haemolytic disease of newborn	5	4	9
776	Anoxic and hypoxic conditions, n.e.c.	38	22	60
777	Immaturity, unqualified	19	10	29
	Other	6	4	10
	Total	186	144	330
	Causes mainly of postnatal origin—			
000-009	Intestinal infectious diseases	15	11	26
038	Septicaemia	2	.....	2
320, 036	Meningitis and meningococcal infection	5	3	8
480-486	Pneumonia	26	16	42
911	Inhalation or ingestion of food causing obstruction or suffocation	.....	1	1
	Other	31	24	55
	Total	79	55	134
	All causes	265	199	464

n.e.c. denotes 'not elsewhere classified'.

(a) See NOTE on page 140. (b) Classified in accordance with the *International Statistical Classification of Diseases, Injuries, and Causes of Death* (Eighth Revision), operative from 1 January 1968.

**Stillbirths.** The infant mortality rate discussed above is that most commonly used, and takes no account of stillbirths. It is informative, however, to examine these two factors in relation, as in the next table.

STILLBIRTHS (a) AND INFANT DEATHS (b)  
NUMBERS AND MASCULINITY

Year	Stillbirths (a)				Deaths under one year of age			
	Males	Females	Persons	Masculinity (c)	Males	Females	Persons	Masculinity (c)
1967 ....	92	96	188	95.8	189	125	314	151.2
1968 ....	115	128	243	89.8	236	162	398	145.7
1969 ....	145	105	250	138.1	250	203	453	123.2
1970 ....	166	129	295	128.7	249	210	459	118.6
1971 ....	155	143	298	108.4	265	199	464	133.2

(a) Figures for 1968 and later refer to stillbirths where the child was of at least 20 weeks' gestation; those for 1967 refer to cases where the gestation period was at least 28 weeks.  
(b) See NOTE on page 140. (c) Number of males to each 100 females.

The relationship between stillbirths and infant deaths during the same period is further examined in the following table, which shows the numbers of stillbirths and of infant deaths at various ages. The rates shown represent the number of stillbirths, or of infant deaths, per thousand of total births (*i.e.* including stillbirths).

STILLBIRTHS (a) AND INFANT DEATHS (b)  
NUMBERS AND RATES

Year	Stillbirths (a)	Infant deaths			Stillbirths and infant deaths (a)
		Under 7 days	Under 28 days	Under one year	
NUMBER					
1967	188	208	236	314	502
1968	243	263	290	398	641
1969	250	293	322	453	703
1970	295	272	315	459	754
1971	298	271	305	464	762
RATE (c)					
1967	10.3	11.4	13.0	17.2	27.6
1968	12.3	13.3	14.7	20.1	32.4
1969	11.9	13.9	15.3	21.6	33.5
1970	13.5	12.4	14.4	20.9	34.4
1971	12.1	11.0	12.4	18.9	31.1

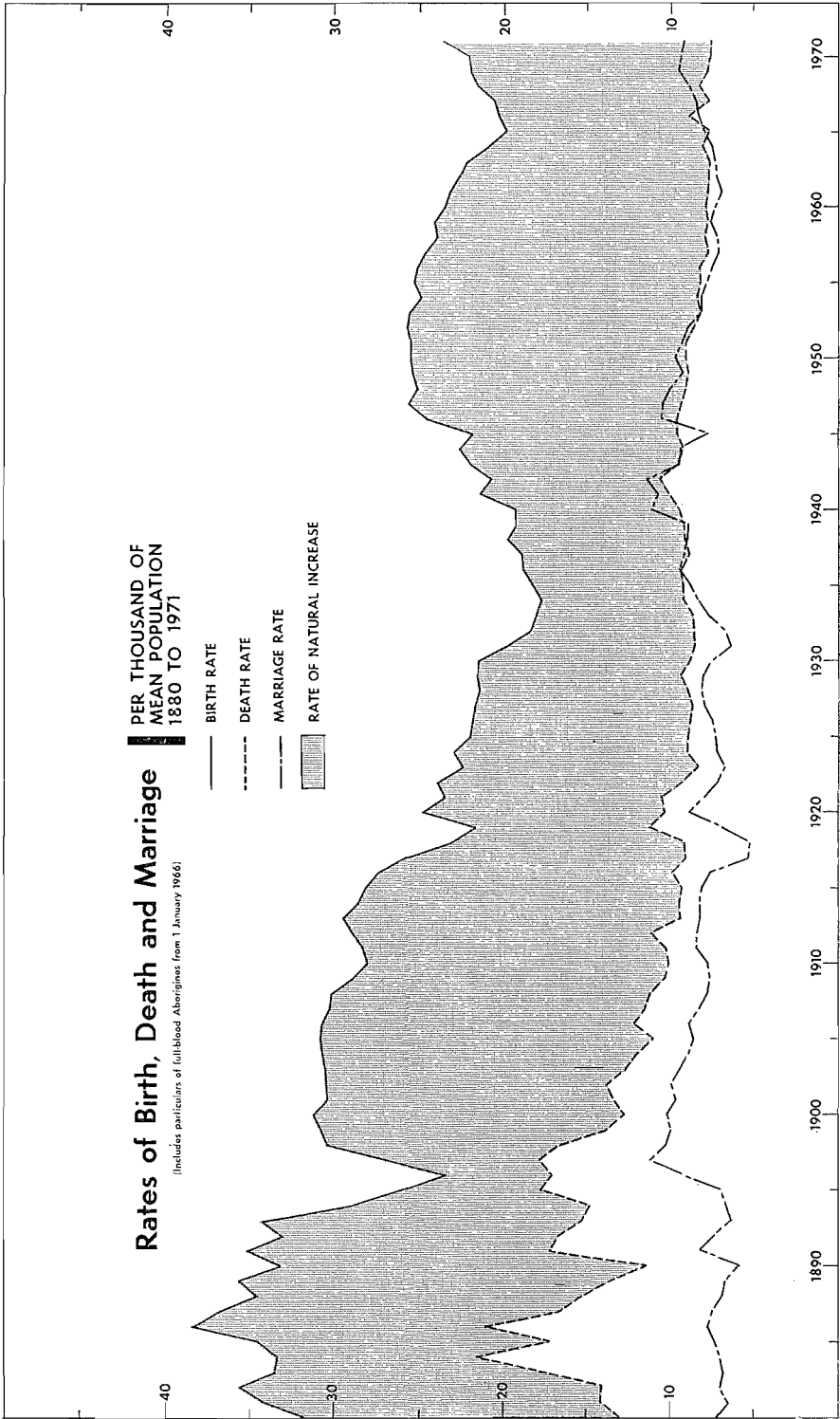
(a) Figures for 1968 and later refer to stillbirths where the child was of at least 20 weeks' gestation; those for 1967 refer to cases where the gestation period was at least 28 weeks. (b) See NOTE on page 140. (c) Rate per 1,000 of total births (*i.e.* including stillbirths); see also note (a).

**Age-specific Death Rates.** The age-specific death rate expresses the number of deaths at specified ages in terms of the population at those particular ages. In the following table, which shows age-specific death rates for Western Australia, the average annual rates for 1965-67 and earlier periods relate to deaths in the three years surrounding a Population Census.

## AGE-SPECIFIC DEATH RATES (a)

Age group (years)	1910-12	1920-22	1932-34	1946-48	1953-55	1960-62	1965-67 (b)
MALES							
Under 1	28.4	23.9	12.8	9.3	7.0	(c) 22.9	(c) 22.1
1-4	2.6	2.2	1.6	0.9	0.7	1.2	1.2
5-9	2.2	1.4	1.4	0.6	0.5	0.5	0.5
10-14	2.9	2.4	1.8	1.5	1.6	0.4	0.4
15-19	5.2	4.0	2.5	2.2	2.0	1.2	1.2
20-24	5.9	4.1	2.9	2.0	1.9	1.5	1.5
25-29	6.8	5.4	3.1	2.3	1.8	1.6	1.8
30-34	8.4	6.4	4.0	2.5	2.2	2.1	2.3
35-39	10.4	7.9	5.7	4.2	3.2	3.5	3.4
40-44	15.0	12.1	8.8	6.3	5.8	5.0	5.3
45-49	17.7	17.2	13.5	11.5	9.0	9.5	9.2
50-54	24.7	23.8	21.4	17.2	15.8	14.8	16.1
55-59	35.1	34.2	28.3	26.3	24.8	23.8	25.4
60-64	46.0	49.5	42.4	40.3	41.5	40.3	41.4
65-69	78.7	72.2	63.4	61.0	62.9	59.6	63.6
70-74	110.5	115.6	105.1	98.7	93.8	96.7	96.4
75-79	185.2	184.5	176.8	149.5	146.9	140.9	146.5
80-84	328.2	283.5	265.0	222.4	225.7	244.5	247.4
85-89	321.4	566.7	380.8	376.2	297.4		
90 and over							
FEMALES							
Under 1	21.8	18.8	8.6	7.9	5.1	(c) 19.4	(c) 17.7
1-4	2.6	1.3	1.3	0.5	0.5	1.2	0.8
5-9	1.8	1.2	1.0	0.6	0.3	0.3	0.3
10-14	2.0	1.3	1.3	0.7	0.7	0.2	0.2
15-19	3.8	3.1	1.9	1.2	0.7	0.5	0.4
20-24	4.4	4.0	2.8	1.5	0.8	0.5	0.7
25-29	4.9	4.6	3.1	1.6	1.0	0.6	0.7
30-34	6.2	4.9	4.2	2.6	1.5	0.8	0.8
35-39	6.7	6.4	5.8	3.1	1.5	1.4	1.4
40-44	8.4	8.1	6.4	5.1	2.1	2.0	2.1
45-49	11.8	10.6	9.1	3.6	3.6	3.3	3.3
50-54	14.2	12.8	10.7	5.9	5.9	5.0	5.3
55-59	20.4	17.8	17.3	8.6	8.6	7.2	7.6
60-64	34.6	30.5	29.8	16.1	13.9	11.4	12.6
65-69	54.5	54.2	44.1	24.6	20.7	19.4	20.7
70-74	92.5	96.4	74.4	40.8	39.2	35.4	34.6
75-79	144.1	137.1	121.0	74.2	67.7	60.6	57.8
80-84	186.7	219.5	192.4	117.6	109.7	101.9	100.6
85-89	359.0	478.3	397.2	187.5	189.9	191.5	182.4
90 and over							
PERSONS							
Under 1	25.2	21.4	11.4	8.6	6.1	(c) 21.2	(c) 19.9
1-4	2.6	1.8	1.4	0.7	0.6	1.2	1.0
5-9	2.0	1.3	1.2	0.6	0.4	0.4	0.4
10-14	2.5	1.9	1.5	1.1	1.2	0.3	0.3
15-19	4.6	3.5	2.2	1.7	1.4	0.8	0.8
20-24	5.3	4.0	2.8	1.7	1.4	1.2	1.2
25-29	6.0	5.0	3.1	1.9	1.4	1.1	1.1
30-34	7.5	5.7	4.1	2.5	1.8	1.2	1.3
35-39	9.1	7.2	5.2	3.7	2.7	1.8	1.9
40-44	12.7	10.4	7.7	5.7	4.8	2.8	2.8
45-49	15.6	14.6	11.5	9.2	7.6	4.2	4.3
50-54	20.9	19.6	16.6	13.8	12.3	7.4	7.3
55-59	29.3	27.9	23.4	21.4	19.3	11.4	12.1
60-64	41.2	41.7	37.0	32.6	30.9	17.8	19.3
65-69	68.7	64.3	55.3	50.8	50.4	29.1	30.8
70-74	103.3	106.7	91.1	86.6	79.8	46.5	47.2
75-79	170.1	162.6	149.7	133.2	125.9	76.3	74.1
80-84	266.7	252.0	222.9	204.1	205.8	118.0	118.3
85-89	333.3	528.3	389.2	312.3	290.4	210.7	203.8
90 and over							

(a) Rates for the three-year periods 1965-67 and earlier represent the average annual number of deaths per 1,000 of population in each age group at the relevant Census; for Census dates see table on page 123. Rates for 1960-62 and earlier exclude full-blood Aborigines; those for 1965-67 refer to total population (i.e. including Aborigines). (b) Based on total population (i.e. including Aborigines); see note (a). See also NOTE on page 140. (c) Infant deaths per 1,000 live births registered.



**Australian Life Tables.** It has been the practice at each census from 1911 onwards to prepare Life Tables representative of the mortality experience of Australia. The mortality of the Australian population for the thirty years from 1881 to 1910 inclusive was investigated in 1911 by the Commonwealth Statistician. Tables were compiled for each State and for Australia as a whole in respect of each sex for each of the decennial periods 1881 to 1890, 1891 to 1900, and 1901 to 1910. At the Census of 1921, Life Tables were prepared by the Commonwealth Statistician from the recorded census population and the deaths in the three years 1920 to 1922. Tables based on data derived from later censuses have been compiled by the Commonwealth Actuary.

The expectation of life of males and females at various ages as revealed by these investigations is shown in the following table.

EXPECTATION OF LIFE (a)—AUSTRALIA: 1881-90 TO 1960-62  
(Years)

Age last birthday (years)	1881-90	1891-1900	1901-10	1920-22	1932-34	1946-48	1953-55	1960-62
MALES								
0	47·20	51·08	55·20	59·15	63·48	66·07	67·14	67·92
5	52·86	55·61	57·91	60·43	62·57	63·77	64·32	64·77
10	48·86	51·43	53·53	56·01	58·02	59·04	59·53	59·93
15	44·45	46·98	49·03	51·44	53·36	54·28	54·72	55·07
20	40·58	42·81	44·74	46·99	48·81	49·64	50·10	50·40
25	37·10	38·90	40·60	42·70	44·37	45·04	45·54	45·80
30	33·64	35·11	36·52	38·44	39·90	40·40	40·90	41·12
35	30·06	31·34	32·49	34·20	35·46	35·79	36·25	36·45
40	26·50	27·65	28·56	30·05	31·11	31·23	31·65	31·84
45	23·04	23·99	24·78	26·03	26·87	26·83	27·18	27·38
50	19·74	20·45	21·16	22·20	22·83	22·67	22·92	23·13
55	16·65	17·08	17·67	18·51	19·03	18·84	19·00	19·18
60	13·77	13·99	14·35	15·08	15·57	15·36	15·47	15·60
65	11·06	11·25	11·31	12·01	12·40	12·25	12·33	12·47
70	8·82	8·90	8·67	9·26	9·60	9·55	9·59	9·77
75	6·72	6·70	6·58	6·87	7·19	7·23	7·33	7·47
80	5·11	5·00	4·96	5·00	5·22	5·36	5·47	5·57
85	3·86	3·79	3·65	3·62	3·90	3·84	4·01	4·08
90	2·91	2·91	2·64	2·60	2·99	2·74	2·93	3·02
95	2·16	2·16	1·88	1·86	2·11	1·93	2·10	2·29
100	1·32	1·29	1·18	1·17	1·10	....	....	....
FEMALES								
0	50·84	54·76	58·84	63·31	67·14	70·63	72·75	74·18
5	56·00	58·64	60·80	63·64	65·64	67·91	69·61	70·78
10	51·95	54·46	56·39	59·20	61·02	63·11	64·78	65·92
15	47·54	49·97	51·86	54·55	56·29	58·27	59·90	61·01
20	43·43	45·72	47·52	50·03	51·67	53·47	55·06	56·16
25	39·67	41·69	43·36	45·71	47·19	48·74	50·24	51·32
30	36·13	37·86	39·33	41·48	42·77	44·08	45·43	46·49
35	32·58	34·14	35·37	37·28	38·37	39·46	40·67	41·70
40	29·08	30·49	31·47	33·14	34·04	34·91	36·00	36·99
45	25·56	26·69	27·59	28·99	29·74	30·45	31·44	32·38
50	22·06	22·93	23·69	24·90	25·58	26·14	27·03	27·92
55	18·64	19·29	19·85	20·95	21·58	22·04	22·81	23·63
60	15·39	15·86	16·20	17·17	17·74	18·11	18·78	19·51
65	12·27	12·75	12·88	13·60	14·15	14·44	15·02	15·68
70	9·70	9·89	9·96	10·41	10·98	11·14	11·62	12·19
75	7·24	7·37	7·59	7·73	8·23	8·32	8·69	9·16
80	5·27	5·49	5·73	5·61	6·01	6·02	6·30	6·68
85	3·90	4·12	4·19	4·06	4·30	4·32	4·52	4·79
90	2·98	3·07	2·99	2·91	3·05	3·08	3·24	3·48
95	2·25	2·18	2·10	2·07	2·00	2·14	2·31	2·59
100	1·37	1·23	1·24	1·24	1·02	....	....	....

(a) Refers to population exclusive of full-blood Aborigines; see letterpress *Aborigines* on page 123.

## MARRIAGES

The number of marriages registered in Western Australia in each of the five years 1967 to 1971 is shown in the following table. Marriages celebrated by ministers of religion are distinguished from those celebrated by civil officers, and the numbers of minors marrying are also shown.

## MARRIAGES REGISTERED (a)

Year	Marriages celebrated by—		All marriages	Proportion celebrated by civil officers (per cent)	Marriages of minors				
	Ministers of religion	Civil officers			Males	Per cent of all bride-grooms	Females	Per cent of all brides	Total minors married

## PERTH STATISTICAL DIVISION

1967	....	....	4,395	823	5,218	15·8	863	16·54	2,442	46·80	3,305
1968	....	....	4,650	940	5,590	16·8	927	16·58	2,568	45·94	3,495
1969	....	....	5,308	1,133	6,441	17·6	993	15·42	2,950	45·80	3,943
1970	....	....	5,296	1,344	6,640	20·2	1,063	16·01	3,023	45·53	4,086
1971	....	....	5,529	1,472	7,001	21·0	1,149	16·41	3,281	46·86	4,430

## OTHER DIVISIONS

1967	....	....	1,894	318	2,212	14·4	357	16·14	1,116	50·45	1,473
1968	....	....	2,160	336	2,496	13·5	425	17·03	1,273	51·00	1,698
1969	....	....	2,155	397	2,552	15·6	398	15·60	1,234	48·35	1,632
1970	....	....	2,177	410	2,587	15·8	465	17·97	1,346	52·03	1,811
1971	....	....	1,949	432	2,381	18·1	422	17·72	1,239	52·04	1,661

## WESTERN AUSTRALIA

1967	....	....	6,289	1,141	7,430	15·4	1,220	16·42	3,558	47·89	4,778
1968	....	....	6,810	1,276	8,086	15·8	1,352	16·72	3,841	47·50	5,193
1969	....	....	7,463	1,530	8,993	17·0	1,391	15·47	4,184	46·53	5,575
1970	....	....	7,473	1,754	9,227	19·0	1,528	16·56	4,369	47·35	5,897
1971	....	....	7,478	1,904	9,382	20·3	1,571	16·74	4,520	48·18	6,091

(a) See NOTE on page 140.

The statistics of minors marrying during the five-year period as shown above reveal that 47·5 per cent of brides were minors, compared with only 16·4 per cent of bridegrooms.

**Age at Marriage.** The relative ages of bridegrooms and brides who married in Western Australia in 1971 are shown in the following table.

## RELATIVE AGES OF BRIDEGROOMS AND BRIDES, 1971 (a)

Age of bridegroom (years)	Total bride-grooms	Age of bride (years)							
		Under 15	15-19	20-24	25-29	30-34	35-39	40-44	45 and over
Under 20	760	....	658	96	6	....	....	....	....
20-24	5,139	....	2,143	2,780	189	18	8	....	1
25-29	1,955	....	324	1,166	367	77	20	....	....
30-34	606	....	47	233	186	88	35	1	5
35-39	256	....	11	40	66	75	38	20	6
40-44	206	....	4	12	28	41	37	53	31
45-49	143	....	....	1	18	18	14	33	59
50-54	110	....	1	1	1	1	10	20	76
55-59	63	....	....	1	3	1	2	7	49
60-64	61	....	....	....	....	2	2	2	55
65 and over	83	....	....	....	1	....	1	2	79
Total brides	9,382	....	3,188	4,330	865	321	167	150	361

(a) See NOTE on page 140.

Of the women who married in 1971, 33.98 per cent were aged less than twenty years. The corresponding figure for men was 8.10 per cent.

The following table gives details of the average age and the conjugal condition of bridegrooms and brides in each of the five years to 1971. In each year of the period the difference in the average age of bridegrooms and brides was about three years, the difference in 1971 being 2.80 years.

AVERAGE AGES OF BRIDEGROOMS AND BRIDES (a)

Year	Average age of bridegrooms (years)				Average age of brides (years)			
	Bachelors	Widowers	Divorced	Total	Spinsters	Widows	Divorced	Total
1967 ....	24.78	56.46	40.92	26.84	21.79	48.91	38.04	23.74
1968 ....	24.57	55.12	41.04	26.37	21.57	48.16	37.27	23.41
1969 ....	24.58	54.94	40.30	26.36	21.71	47.82	37.13	23.51
1970 ....	24.31	56.88	40.42	26.25	21.65	49.79	36.88	23.48
1971 ....	24.44	54.40	39.36	26.27	21.61	50.41	36.66	23.47

(a) See NOTE on page 140.

The following table shows the age and conjugal condition at time of marriage of bridegrooms and brides who married in Western Australia during 1971.

AGE AND CONJUGAL CONDITION OF BRIDEGROOMS AND BRIDES, 1971 (a)

Age at marriage (years)	Bridegrooms				Brides			
	Bachelors	Widowers	Divorced	Total	Spinsters	Widows	Divorced	Total
Under 20	760	....	....	760	3,186	....	2	3,188
20-24 ....	5,117	....	22	5,139	4,260	10	60	4,330
25-29 ....	1,813	8	134	1,955	721	11	133	865
30-34 ....	466	13	127	606	177	19	125	321
35-39 ....	156	18	82	256	55	20	92	167
40-44 ....	78	26	102	206	34	31	85	150
45-49 ....	39	29	75	143	19	37	68	124
50-54 ....	19	28	63	110	8	42	39	89
55-59 ....	10	29	24	63	9	38	19	66
60-64 ....	9	38	14	61	2	29	5	36
65 and over	11	56	16	83	3	37	6	46
Total ....	8,478	245	659	9,382	8,474	274	634	9,382

(a) See NOTE on page 140.

The numbers and ages of minors who married in Western Australia during each of the five years 1967 to 1971 are given in the following table. In each year of the period the number of brides under twenty-one years of age was approximately three times that of bridegrooms aged less than twenty-one years.

MARRIAGES OF MINORS (a)

Year	Bridegrooms							Brides						
	Age last birthday (years)							Age last birthday (years)						
	Under 16	16	17	18	19	20	Under 21	Under 16	16	17	18	19	20	Under 21
1967 ....	....	1	14	211	384	610	1,220	14	193	405	743	1,062	1,141	3,558
1968 ....	....	....	20	213	422	697	1,352	16	211	481	857	1,101	1,175	3,841
1969 ....	....	....	11	224	440	716	1,391	6	231	517	905	1,200	1,325	4,184
1970 ....	....	1	17	231	498	781	1,528	14	220	540	979	1,273	1,343	4,369
1971 ....	....	2	17	247	494	811	1,571	11	238	577	1,038	1,324	1,332	4,520

(a) See NOTE on page 140.

**Religious and Civil Marriages.** The *Marriage Act* 1961-1966 (Commonwealth) provides that marriages may be celebrated either by ministers of religion registered for the purpose with the Registrar of Ministers of Religion in each State or Territory or by certain civil officers, usually District Registrars.

The following table, which relates to marriages registered in Western Australia during the period 1967 to 1971, shows the numbers and proportions celebrated by ministers of the principal religious denominations and by civil officers.

RELIGIOUS AND CIVIL MARRIAGES (a)

Category of authorised celebrant	1967	1968	1969	1970	1971	
					Number	Per cent of total
Registered ministers of recognised religious denominations (b)—						
Church of England in Australia .....	2,388	2,560	2,754	2,778	2,700	28.8
Church of Jesus Christ of Latter Day Saints .....	20	15	14	15	21	0.2
Churches of Christ in Australia .....	176	190	162	175	202	2.2
Congregational Union of Australia .....	127	128	109	123	114	1.2
Jehovah's Witnesses .....	16	24	36	30	39	0.4
Jewry .....	11	7	14	8	16	0.2
Lutheran Church (c) .....	26	53	46	47	39	0.4
Orthodox Church (c) .....	70	71	82	75	93	1.0
Roman Catholic Church .....	1,928	2,122	2,436	2,490	2,515	26.8
Seventh-day Adventist Church .....	36	42	45	28	41	0.4
The Baptist Union of Australia .....	104	105	110	133	118	1.3
The Methodist Church of Australasia .....	806	892	975	962	932	9.9
The Presbyterian Church of Australia .....	405	410	523	475	478	5.1
The Salvation Army .....	50	46	48	33	37	0.4
Other .....	101	116	72	63	78	0.8
Total .....	6,264	6,781	7,426	7,435	7,423	79.1
Other authorised celebrants—						
Ministers of religion .....	25	29	37	38	55	0.6
Civil officers .....	1,141	1,276	1,530	1,754	1,904	20.3
Total marriages .....	7,430	8,086	8,993	9,227	9,382	100.0
Proportion of total (per cent)—						
Ministers of religion .....	84.6	84.2	83.0	81.0	...	79.7
Civil officers .....	15.4	15.8	17.0	19.0	...	20.3

(a) See NOTE on page 140.

(b) Under authority of the *Marriage Act* 1961-1966 (Commonwealth).

(c) Includes churches grouped under this heading in the proclamation made under the *Marriage Act*.

**Marriage Rates.** The average annual marriage rates per thousand of mean population for Western Australia and for the Commonwealth in each five-year period from 1921 to 1970, as well as the rates for each of the years from 1962 to 1971, are shown in the following table.

MARRIAGE RATES (a)  
WESTERN AUSTRALIA AND AUSTRALIA

Period	Average annual rate (b)		Year	Annual rate (b)	
	Western Australia	Australia		Western Australia	Australia
1921-25 .....	7.27	8.04	1962	7.23	7.39
1926-30 .....	7.80	7.52	1963	7.40	7.42
1931-35 .....	7.58	7.16	1964	7.55	7.73
1936-40 .....	9.49	9.35	1965	7.91	8.25
1941-45 .....	9.74	9.94			
			1966	8.25	8.28
1946-50 .....	10.01	9.77			
1951-55 .....	8.44	8.29	1967	8.44	8.47
1956-60 .....	7.36	7.50	1968	8.83	8.85
1961-65 .....	7.43	7.63	1969	9.41	9.16
			1970	9.28	9.26
1966-70 .....	8.87	8.81	1971	9.09	9.20

(a) See NOTE on page 140.

(b) Rates for the years 1966 to 1970 have been revised in accordance with the final results of the 1971 Census.

## DIVORCE

The *Matrimonial Causes Act* 1959-1966 (Commonwealth) establishes uniform grounds throughout Australia for the termination of marriage. Grounds for dissolution of marriage (*i.e.* divorce) include desertion for not less than two years, adultery, separation for not less than five years, cruelty, drunkenness, and failure to comply with maintenance orders. The main grounds for nullity of marriage are bigamy and incapacity to consummate the marriage.

Decrees may be granted by a Court for dissolution of marriage, judicial separations, nullity of marriage, and restitution of conjugal rights. Orders may also be made for the custody and welfare of children, maintenance, the settlement of property, and damages for adultery.

A decree for dissolution of marriage is in the first instance a decree *nisi*. The decree automatically becomes absolute at the expiration of three months, unless it is in the meantime rescinded; appeal proceedings are instituted; or there are children of the marriage under the age of sixteen years, in which case the court must be satisfied that appropriate arrangements have been made for their welfare before the decree will become absolute. The parties cannot remarry until a decree *nisi* has become absolute. A decree of judicial separation is available on most of the grounds available for divorce.

## PETITIONS FILED

Year	Petitions for—				Total petitions	Petitioner	
	Dissolution of marriage	Nullity of marriage	Judicial separation	Restitution of conjugal rights		By husband	By wife
1967 ....	888	2	....	3	893	412	481
1968 ....	995	5	3	3	1,006	489	517
1969 ....	1,059	5	1	6	1,071	503	568
1970 ....	1,204	2	....	1	1,207	578	629
1971 ....	1,451	3	....	5	1,459	678	781

The following table gives the number of decrees absolute granted for dissolution of marriage and the grounds for the decrees in the period 1967 to 1971. In each year except 1967, adultery was the principal ground for divorce, and accounted for 40·2 per cent of all decrees granted during the five years.

## DISSOLUTIONS OF MARRIAGE—DECREE ABSOLUTE GRANTED

Year	Ground (a)					Total decrees absolute	To husband	To wife	To both
	Adultery	Desertion	Separation for 5 years or longer	Maintenance (b)	Other				
1967 ....	249	258	189	2	28	726	345	381	....
1968 ....	305	259	204	7	37	812	365	447	....
1969 ....	340	311	183	7	31	872	421	451	....
1970 ....	377	308	169	1	34	889	433	456	....
1971 ....	482	344	191	1	46	1,064	486	577	1

(a) Where a dissolution is granted on two or more grounds, only one ground is tabulated, preference being given in the order shown.

(b) Non-compliance with maintenance order.

In the following table particulars are given of the duration of marriage, *i.e.* the interval between marriage and the time of dissolution, for marriages dissolved during the five years 1967 to 1971.

## DISSOLUTIONS OF MARRIAGE—DURATION OF MARRIAGE

Year of dissolution of marriage	Marriages dissolved after a duration of—								Total marriages dissolved
	Under 5 years	5-9 years	10-14 years	15-19 years	20-24 years	25-29 years	30-34 years	35 years and over	
1967	76	162	138	128	102	68	31	21	726
1968	71	219	167	133	108	61	34	19	812
1969	92	223	180	129	128	71	32	17	872
1970	106	247	167	116	120	81	32	20	889
1971	120	304	199	153	161	74	30	23	1,064

The following table shows, for the year 1971, the number of marriages dissolved classified according to duration of marriage and the number of children of the marriage.

## DISSOLUTIONS OF MARRIAGE—DURATION OF MARRIAGE AND NUMBER OF CHILDREN OF THE MARRIAGE (a), 1971

Duration of marriage (years)	Marriages dissolved with—							Total marriages dissolved		Total number of children
	No children	1 child	2 children	3 children	4 children	5 children	6 or more	Number	Per cent	
0-4	73	40	5	1	1	....	....	120	11.3	57
5-9	97	89	89	21	2	2	4	304	28.6	379
10-14	32	21	71	50	18	3	4	199	18.7	426
15-19	25	14	41	38	26	6	3	153	14.4	363
20-24	22	30	35	43	21	5	5	161	15.1	370
25-29	26	20	18	6	2	2	....	74	7.0	92
30-34	18	8	3	1	....	....	....	30	2.8	17
35 and over	21	1	....	1	....	....	....	23	2.2	4
Decree to—										
Husband	171	100	120	53	31	5	6	486	45.7	689
Wife	143	122	142	108	39	13	10	577	54.2	1,018
Both	....	1	....	....	....	....	....	1	0.1	1
Total	314	223	262	161	70	18	16	1,064	100.0	1,708

(a) Number of children living and under 21 years of age at time of petition. Includes children deemed to be children of the marriage in accordance with Section 6 of the Matrimonial Causes Act.

The following table shows, for the year 1971, the ages of husband and wife at the time of dissolution.

## DISSOLUTIONS OF MARRIAGE—RELATIVE AGES OF PARTIES AT TIME OF DISSOLUTION, 1971

Age group of husband (years)	Age group of wife (years)										Total husbands	
	Under 20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60 and over	Number	Per cent
Under 20	....	35	2	....	....	....	....	....	....	....	39	3.7
20-24	2	72	97	13	4	....	....	....	....	....	186	17.5
25-29	....	10	98	74	8	1	....	....	....	....	191	18.0
30-34	....	2	21	76	46	8	....	....	....	....	153	14.4
35-39	....	....	9	18	57	63	13	3	2	....	165	15.5
40-44	....	....	1	9	20	44	49	9	....	....	132	12.4
45-49	....	....	....	....	6	14	40	19	9	1	89	8.4
50-54	....	....	....	1	....	5	16	20	19	3	64	6.0
55-59	....	....	....	....	2	1	6	10	11	15	45	4.2
60 and over	....	....	....	....	....	....	....	....	....	....	....	....
Total wives—												
Number	2	119	228	191	143	136	124	61	41	19	1,064	....
Per cent	0.2	11.2	21.4	18.0	13.4	12.8	11.7	5.7	3.9	1.8	....	100.0

## CHAPTER V—SOCIAL CONDITIONS

### Part 1—Education

#### PRIMARY, SECONDARY AND TECHNICAL EDUCATION

In Western Australia, education at primary and secondary levels is provided at government schools administered and staffed by the Education Department and at non-government schools, most of which are conducted by the principal religious bodies. The Technical Education Division of the Education Department provides technician-level courses, apprenticeship and part-apprenticeship training programmes, general studies (including courses for students preparing for public and other external examinations), and adult education (including classes designed as leisure-type studies).

#### Government Financial Assistance

The State Government each year awards to country students 150 scholarships, valued at \$81 per annum, tenable for the first three years of secondary education at government or non-government schools and a further ten scholarships, valued at \$162 per annum, tenable in the fourth and fifth years. These amounts are additional to the boarding allowances which are paid to students who are obliged to live away from home to attend secondary schools. As a contribution towards tuition fees at non-government schools assistance is made available on the basis of \$30 annually for each student in primary grades and \$40 for each student in secondary years of study, except in the case of students in receipt of any scholarship, bursary or like award of a value exceeding \$80 per annum. An annual text book subsidy payment of \$5 in respect of each student in first, second and third year and \$10 for each student in fourth and fifth year of secondary education commenced in 1969. A scheme providing for the issue of free text books to primary school children commenced in 1972.

All these forms of assistance are granted without the application of a means test.

The State Government provides financial aid to non-government schools by a system of direct annual grants. The value of these grants is determined by the number of primary and secondary enrolments. Assistance is also given by way of reimbursement of interest paid, up to a prescribed maximum rate, on moneys borrowed since 1 January 1965 for expenditure on new residential accommodation for scholars. In addition, subsidies are provided for the installation of swimming pools.

The Commonwealth Government makes an annual award of scholarships tenable by students in the fourth and fifth years of secondary education at government and non-government schools, as well as technical scholarships for certain courses at technical institutions. Benefits, which are not subject to a means test, comprise, for full-time students, a living allowance of \$200 per annum, \$50 per annum for text books and equipment, and up to \$150 per annum for fees. For part-time technical students, allowances of \$100 per annum, not subject to a means test, are granted and compulsory fees are reimbursed up to a maximum of \$100 per annum. Aboriginal study grants are payable by the Commonwealth Government to assist persons of Aboriginal descent to undertake courses of study after leaving school. The grants provide a living allowance to full-time students of \$50 per fortnight, a textbook and equipment allowance and payment of compulsory fees. Where appropriate, travel and dependants' allowances are also payable. In addition, Aboriginal secondary grants are paid to assist persons of Aboriginal descent to continue schooling beyond the school leaving age. The grants provide for payment of compulsory fees and living and other allowances.

The Commonwealth Government also provides assistance for secondary and technical education by means of specific-purpose grants to the States for science laboratories,

technical training and school libraries, as well as for recurrent expenditure of non-government schools and capital expenditure on government schools. Reference to these grants will be found in the section *Commonwealth Financial Assistance for Education* on pages 181-4.

### School Attendance

Where a child lives within reasonable access of a government or approved non-government school, attendance is compulsory from the age of six years and upward to the end of the year in which the child attains the age of fifteen years, unless satisfactory instruction is provided elsewhere. The Minister for Education may, however, if he is satisfied that the best interests of the child would be served, exempt a child from further attendance at school if the child has attained the age of fourteen years, is assured of employment and it is necessary for the child to leave school in order to engage in that employment.

### School Enrolments

The following tables give a classification according to age of pupils enrolled at government and non-government schools on 1 August in the years shown.

#### GOVERNMENT AND NON-GOVERNMENT SCHOOLS PUPILS CLASSIFIED ACCORDING TO AGE

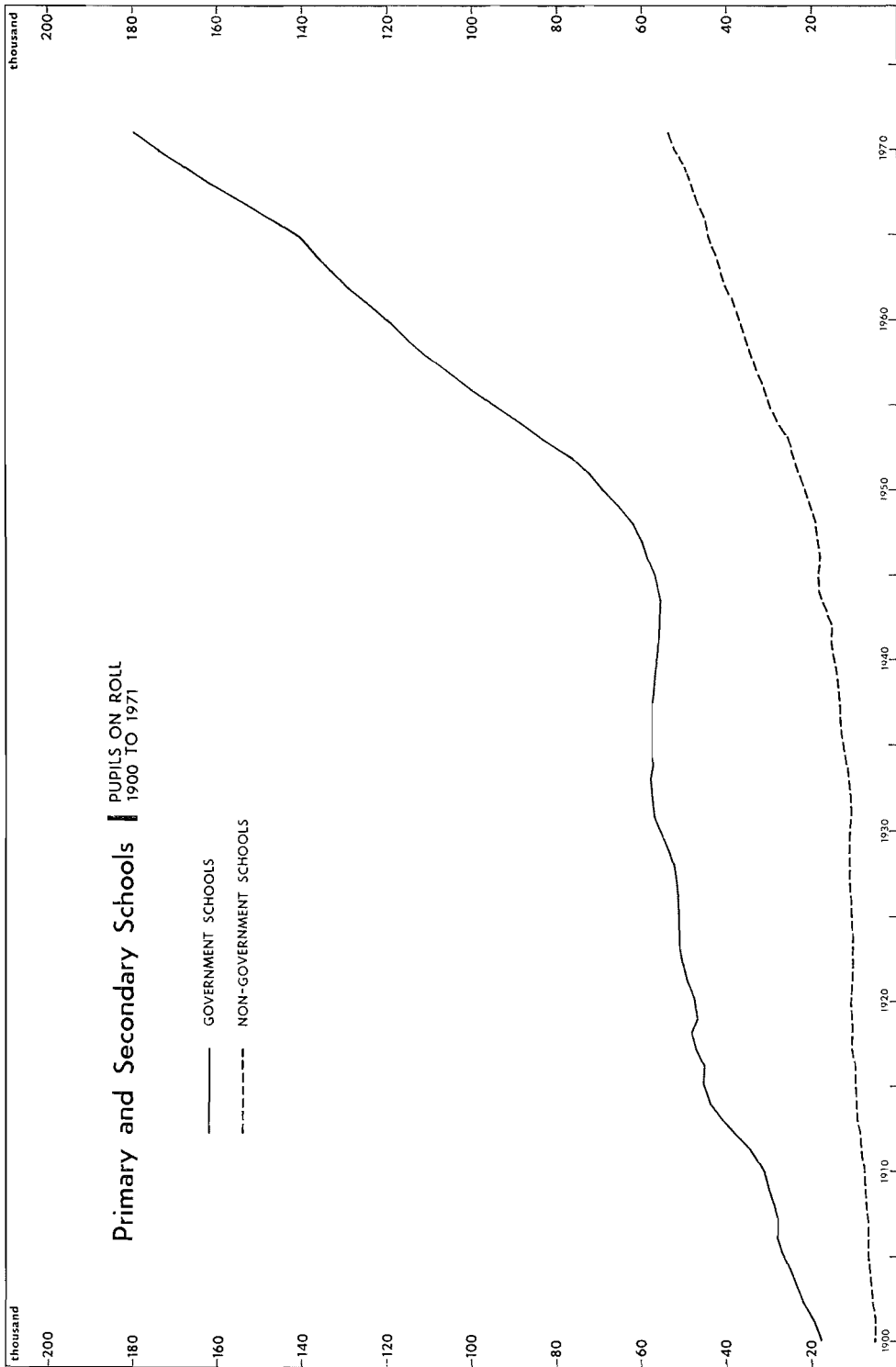
Age last birthday (a) (years)	Government schools (b)					Non-government schools (c)				
	1967	1968	1969	1970	1971	1967	1968	1969	1970	1971
Under 6	6,196	6,409	6,584	6,675	6,951	1,314	1,457	1,304	1,379	1,371
6	15,517	16,042	16,965	16,765	16,703	3,563	3,456	3,617	3,414	3,276
7	15,494	16,355	16,818	17,470	17,348	3,470	3,535	3,460	3,724	3,517
8	15,401	16,241	17,165	17,474	18,179	3,309	3,442	3,399	3,465	3,587
9	15,363	15,975	16,810	17,826	17,983	3,268	3,270	3,449	3,461	3,509
10	15,163	15,967	16,648	17,284	18,151	3,265	3,276	3,379	3,438	3,474
11	15,464	15,574	16,308	16,785	17,759	3,368	3,321	3,388	3,484	3,528
12	14,619	15,436	15,646	16,394	16,931	3,718	3,747	3,725	3,845	3,994
13	13,457	14,507	15,231	15,434	16,171	3,936	4,116	4,185	4,160	4,144
14	13,314	13,305	14,399	15,048	15,245	3,829	3,961	4,002	4,080	4,043
15	9,062	9,227	9,327	10,179	10,921	3,106	3,249	3,303	3,471	3,515
16	3,481	3,822	4,198	4,446	5,027	1,985	2,112	2,177	2,175	2,327
17	1,636	1,690	1,901	2,069	2,326	1,067	1,114	1,239	1,287	1,233
18 and over	168	196	195	175	194	163	183	181	175	163
Total	154,335	160,746	168,195	174,024	179,889	39,361	40,239	40,808	41,558	41,681

(a) At 1 August. (b) Includes Special Schools and Classes; see letterpress on page 167. Excludes Technical Schools and Colleges; see table on page 169. Excludes also part-time students enrolled in the Western Australian Correspondence School. (c) Excludes pupils attending kindergarten schools and pupils in kindergarten grades at other non-government schools; see letterpress on pages 171-2.

#### GOVERNMENT AND NON-GOVERNMENT SCHOOLS PUPILS CLASSIFIED ACCORDING TO AGE AND SEX: AUGUST 1971

Age last birthday (a) (years)	Government schools (b)			Non-government schools (c)			All schools (b) (c)		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Under 6	3,569	3,382	6,951	663	708	1,371	4,232	4,090	8,322
6	8,572	8,131	16,703	1,580	1,696	3,276	10,152	9,827	19,979
7	9,018	8,330	17,348	1,680	1,837	3,517	10,698	10,167	20,865
8	9,499	8,680	18,179	1,736	1,851	3,587	11,235	10,531	21,766
9	9,405	8,578	17,983	1,645	1,864	3,509	11,050	10,442	21,492
10	9,577	8,574	18,151	1,594	1,880	3,474	11,171	10,454	21,625
11	9,277	8,482	17,759	1,619	1,909	3,528	10,896	10,391	21,287
12	8,879	8,052	16,931	1,827	2,167	3,994	10,706	10,219	20,925
13	8,492	7,679	16,171	1,986	2,158	4,144	10,478	9,837	20,315
14	7,965	7,280	15,245	1,951	2,092	4,043	9,916	9,372	19,288
15	5,974	4,947	10,921	1,646	1,869	3,515	7,620	6,816	14,436
16	2,828	2,199	5,027	1,129	1,198	2,327	3,957	3,397	7,354
17	1,443	883	2,326	671	562	1,233	2,114	1,445	3,559
18 and over	146	48	194	117	46	163	263	94	357
Total	94,644	85,245	179,889	19,844	21,837	41,681	114,488	107,082	221,570

For footnotes, see previous table.



School censuses are conducted annually at or about the beginning of August in all States and the internal Territories of Australia. The Western Australian Correspondence School (see letterpress on page 167), special schools and classes (see letterpress on page 167), schools in institutional homes, hospitals and similar establishments, and kindergartens are included in the census. Institutions such as business colleges and coaching establishments are excluded.

In the following table pupils enrolled in primary grades at 1 August 1971 are classified according to grade and age. The figures exclude particulars of pupils attending kindergarten schools and pupils in kindergarten grades at other non-government schools. Reference to kindergarten schools will be found on pages 171-2.

### PRIMARY PUPILS—AGE AND GRADE AT 1 AUGUST 1971

Age last birthday (years)	Grade							Ungraded pupils—		Total
	1	2	3	4	5	6	7	In special classes (a)	In special schools(a)	
GOVERNMENT SCHOOLS (b)										
Under 6 ....	6,860	5	....	....	....	....	....	7	79	6,951
6 ....	10,566	6,016	8	....	....	....	....	17	96	16,703
7 ....	734	10,652	5,790	6	....	....	....	58	108	17,348
8 ....	26	1,082	11,094	5,712	9	....	....	162	94	18,179
9 ....	7	84	1,185	10,933	5,464	9	....	191	110	17,983
10 ....	1	18	87	1,301	10,956	5,444	6	235	103	18,151
11 ....	....	4	13	134	1,252	10,601	5,358	275	111	17,748
12 ....	....	2	6	26	111	1,175	10,215	213	119	11,867
13 ....	....	....	....	3	22	84	1,027	53	109	1,298
14 ....	....	....	....	3	1	11	66	1	89	171
15 ....	1	....	....	....	....	3	31	....	97	132
16 ....	....	....	....	....	....	1	....	....	84	85
17 ....	....	....	....	....	1	....	....	....	45	46
18 and over ....	....	....	....	....	....	....	....	....	13	13
Total ....	18,195	17,863	18,183	18,118	17,816	17,328	16,703	1,212	1,257	126,675
NON-GOVERNMENT SCHOOLS (c)										
Under 6 ....	1,369	2	....	....	....	....	....	....	....	1,371
6 ....	2,125	1,149	....	....	....	....	....	....	....	3,276
7 ....	151	2,323	1,038	5	....	....	....	....	....	3,517
8 ....	4	289	2,183	1,108	3	....	....	....	....	3,587
9 ....	....	30	282	2,154	1,039	4	....	....	....	3,509
10 ....	....	....	33	295	2,099	1,031	15	....	....	3,473
11 ....	....	2	9	40	253	2,138	1,070	....	....	3,512
12 ....	....	....	1	18	38	347	2,218	....	....	2,622
13 ....	....	....	1	1	6	40	257	....	....	305
14 ....	....	....	3	2	7	9	28	....	....	49
15 ....	....	....	....	....	....	2	3	....	....	5
16 ....	....	....	....	....	....	1	1	....	....	2
17 ....	....	....	....	....	....	....	....	....	....	....
18 and over ....	....	....	....	....	....	....	....	....	....	....
Total ....	3,649	3,795	3,552	3,623	3,445	3,572	3,592	....	....	25,228
ALL SCHOOLS (b) (c)										
Under 6 ....	8,229	7	....	....	....	....	....	7	79	8,322
6 ....	12,691	7,165	10	....	....	....	....	17	96	19,979
7 ....	885	12,975	6,828	11	....	....	....	58	108	20,865
8 ....	30	1,371	13,277	6,820	12	....	....	162	94	21,766
9 ....	7	114	1,467	13,087	6,503	13	....	191	110	21,492
10 ....	1	18	120	1,596	13,055	6,475	21	235	103	21,624
11 ....	....	6	22	174	1,505	12,739	6,428	275	111	21,260
12 ....	....	2	7	44	149	1,522	12,433	213	119	14,489
13 ....	....	....	1	4	28	124	1,284	53	109	1,603
14 ....	....	....	3	5	8	20	94	1	89	220
15 ....	1	....	....	....	....	5	34	....	97	137
16 ....	....	....	....	....	....	2	1	....	84	87
17 ....	....	....	....	....	1	....	....	....	45	46
18 and over ....	....	....	....	....	....	....	....	....	13	13
Total ....	21,844	21,658	21,735	21,741	21,261	20,900	20,295	1,212	1,257	151,903

(a) See letterpress *Special Schools and Classes* on page 167. (b) Excludes part-time students enrolled in the Western Australian Correspondence School. (c) Excludes 11,632 pupils attending kindergarten schools and 432 pupils in kindergarten grades at other non-government schools.

The following table gives a classification of school pupils at secondary level at 1 August 1971 according to year of study and age of pupil.

### SECONDARY PUPILS—AGE AND YEAR OF STUDY AT 1 AUGUST 1971

Age last birthday (years)	Year of study					Ungraded pupils in special classes (a)	Total
	1	2	3	4	5		
GOVERNMENT SCHOOLS (b)							
11	11	....	....	....	....	....	11
12	5,003	37	....	....	....	24	5,064
13	9,671	5,029	6	....	....	167	14,873
14	1,195	9,360	4,354	3	....	162	15,074
15	57	1,075	7,993	1,619	2	43	10,789
16	13	116	836	2,989	986	2	4,942
17	3	6	108	255	1,908	....	2,280
18 and over	1	....	12	6	162	....	181
Total	15,954	15,623	13,309	4,872	3,058	398	53,214
NON-GOVERNMENT SCHOOLS							
11	(c) 17	....	....	....	....	....	(c) 17
12	1,356	16	....	....	....	....	1,372
13	2,526	1,305	8	....	....	....	3,839
14	261	2,549	1,177	7	....	....	3,994
15	28	283	2,440	757	2	....	3,510
16	3	28	256	1,452	586	....	2,325
17	....	....	13	144	1,076	....	1,233
18 and over	....	....	2	17	144	....	163
Total	(c) 4,191	4,181	3,896	2,377	1,808	....	(c) 16,453
ALL SCHOOLS (b)							
11	(c) 28	....	....	....	....	....	(c) 28
12	6,359	53	....	....	....	24	6,436
13	12,197	6,334	14	....	....	167	18,712
14	1,456	11,909	5,531	10	....	162	19,068
15	85	1,358	10,433	2,376	4	43	14,299
16	16	144	1,092	4,441	1,572	2	7,267
17	3	6	121	399	2,984	....	3,513
18 and over	1	....	14	23	306	....	344
Total	(c) 20,145	19,804	17,205	7,249	4,866	398	(c) 69,667

(a) See letterpress *Special Schools and Classes* on page 167.

(b) Excludes part-time students enrolled in the Western Australian Correspondence School.

(c) Includes one pupil aged 10 years.

### THE EDUCATION DEPARTMENT

The Education Department is responsible for the organisation and management of the State Government's education programme and is controlled by a Director-General of Education responsible to the Minister for Education. The administrative structure of the Department provides for five Divisions. The Divisions, each of which is in the charge of a Director, are those of Primary Education, Secondary Education, Technical Education, Teacher Education, and Special Services. Special Branches attached to particular Divisions are concerned with such activities as physical education (including swimming instruction), music, drama, art and crafts, visual education and publications. In addition there is provision for a number of other services which are concerned with particular aspects of the education and welfare of school children, such as the Nature Advisory Service, and the School Medical and Dental Services conducted in collaboration with the Department of Public Health.

#### Primary and Secondary Schools

Instruction in the primary school is given in seven grades. A child who makes normal progress completes the course at the age of twelve years and may then enter high school. A Senior High School provides tuition in five years of study leading to the Leaving

Examination, which is the final examination in Western Australian secondary schools and is normally taken at the age of seventeen years. A High School gives instruction in the first three years of the secondary school curriculum. A Junior High School is one which provides primary schooling and three years of post-primary schooling. At some centres where there is no high school, post-primary subjects are taught at the primary school.

Any student who completes at least one year of secondary schooling may qualify for an Achievement Certificate, but with normal progress a student is awarded the Certificate after completing three years of secondary schooling at the age of fifteen years.

The Education Act provides for the establishment of a Board of Secondary Education. The principal functions of the Board are, in respect of secondary schools and other bodies and institutions conducting courses of secondary education, to approve courses of study; assist in assessment of students; ensure comparability of such assessments; and issue certificates of achievement to students.

The following table shows the number of schools staffed and controlled by the Education Department, the number of teachers employed, and the number of pupils classified according to grade of education, for each of the years 1967 to 1971.

## GOVERNMENT SCHOOLS

Particulars	At 1 August—				
	1967	1968	1969	1970	1971

## NUMBER OF SCHOOLS

Primary schools ....	481	482	484	493	497
Junior high schools ....	37	40	40	45	46
High schools ....	19	19	20	15	17
Senior high schools ....	28	29	29	36	38
Total ....	565	570	573	589	598

## NUMBER OF TEACHERS (a)

Engaged in teaching duties ....	5,534	5,910	6,306	6,688	7,080
On special duties ....	110	121	121	131	139
On leave ....	90	110	70	99	73
Total ....	5,734	6,141	6,497	6,918	7,292
Males ....	2,869	3,072	3,164	3,278	3,457
Females ....	2,865	3,069	3,333	3,640	3,835
Total ....	5,734	6,141	6,497	6,918	7,292

## NUMBER OF PUPILS (b)

Grade of education—					
Primary ....	110,821	115,217	120,032	123,255	126,675
Secondary—Years 1, 2 and 3 ....	37,541	39,246	41,209	43,424	44,886
Years 4 and 5 ....	5,438	5,761	6,472	6,972	7,930
Ungraded pupils in special classes ....	535	522	482	373	398
Total ....	154,335	160,746	168,195	174,024	179,889
Males ....	81,177	84,613	88,487	91,698	94,644
Females ....	73,158	76,133	79,708	82,326	85,245
Total ....	154,335	160,746	168,195	174,024	179,889

(a) Excluding persons teaching part-time.  
pandence School.

(b) Excludes part-time students enrolled in the Western Australian Corres-

The figures shown under the heading 'On special duties' represent teachers engaged in activities associated with the Division of Special Services and the Special Branches of the Department.

### **Primary and Secondary Curriculum**

In primary schools the subjects taught are English, mathematics, social studies, elementary science, physical education, handicrafts, music and art. Handicrafts in the primary schools consist of needlework for girls and such crafts as leatherwork, bookbinding, papiermache work and canework for boys. At the post-primary levels, mathematics, languages, science subjects, economics, home economics, woodwork, metal work and technical drawing are introduced. The teaching of elementary science aims at a better understanding of the child's physical environment. The course is adapted to the conditions of the particular neighbourhood, and so varies between town and country areas. In musical expression, choral singing receives most attention, although school orchestras are being developed in some primary and high schools. Advisory teachers, under the direction of specialist superintendents, assist teachers in the fields of handicrafts, physical education, art, music, speech, drama and elementary science.

Education in the government schools is secular in character but periods are set aside during which representatives of various religious denominations attend to give religious instruction. In addition, instruction in scripture stories is given by class teachers.

### **Radio, Television and Film Aids**

Extensive use is made of radio and films, most schools having radio receivers and many being equipped also with film projectors and sound-reproduction systems. The use of television is increasing, particularly in secondary schools, as an aid in the teaching of mathematics, science, literature, social studies and languages. The Australian Broadcasting Commission co-operates with the Education Department in providing suitable radio and television programmes and Parents and Citizens' Associations assist in supplying the necessary equipment. The Audio-Visual Education Branch of the Department provides a wide variety of audio-visual aids.

### **Student Counselling and Vocational Guidance**

Guidance officers of the Division of Special Services are available to discuss with parents the most suitable courses of study for their children and vocational guidance is given to pupils leaving high school. In addition, cases of handicapped or educationally retarded children are investigated and appropriate courses of education recommended.

### **Special Schools and Classes**

The Division of Special Services provides a variety of assistance for physically and mentally handicapped children. A Kindergarten and Infant School for Deaf Children is maintained, as well as a Deaf School for older pupils. Special classes are organised for the blind and for the mentally handicapped, and instruction is given to patients at the Princess Margaret Hospital for Children and at other hospitals. The Department co-operates with welfare organisations, such as the Spastic Welfare Association and the Slow Learning Children's Group, by making teachers available to them.

### **Correspondence Tuition**

The Western Australian Correspondence School provides tuition by correspondence for children living in remote areas or unable to attend school for other reasons. The service extends also to post-primary students in the smaller country schools, to sick and invalid children, and to some adults in country areas. Adults enrol mainly in order to meet the training requirements for some occupations, or to improve their general education. At 1 August 1971, full-time students enrolled in the Correspondence School comprised 403 primary and 64 secondary students.

Schools of the Air are conducted through the radio network of the Royal Flying Doctor Service from bases at Carnarvon, Derby, Kalgoorlie, Meekatharra and Port Hedland to supplement tuition provided by the Correspondence School.

### Education of Aborigines

Aboriginal and part-Aboriginal children are admitted to ordinary schools and are educated under the same conditions as other children. For schools with a preponderance of Aborigines, special attention is directed to the framing of courses of study suited to the vocational needs of the older Aboriginal pupils. In August 1971 there were 5,743 Aboriginal and part-Aboriginal children at government primary schools and high schools and 1,116 at non-government schools.

Instruction for adult Aborigines is available under the Adult Aboriginal Education programme conducted by the Technical Education Division (see page 170).

### Agricultural Education

Agricultural education is provided at certain high schools. Residential accommodation is available at the Narrogin Agricultural Senior High School, the Harvey Agricultural High School and the Agricultural Junior High Schools at Cunderdin and Denmark. Day instruction is provided by high schools at Esperance, Kojonup, Manjimup, Margaret River and Mount Barker. Preference is given to the sons of farmers but other suitably qualified boys, with the physical capacity for farm work, are admitted. The curriculum is designed as a continuation of general education to standards equivalent to those of other types of schools but with appropriate vocational emphasis. The aim is to produce young men capable of becoming leaders in rural communities as well as being successful farmers with an appreciation of the value of scientific methods in agriculture. Each school providing agricultural instruction has agricultural land attached to it.

Diploma and certificate courses in various aspects of agriculture are provided by the Technical Education Division by means of class tuition, or by correspondence through the Technical Extension Service.

In addition to the activities of the Education Department in the field of agricultural education, facilities are also provided by Muresk Agricultural College, a department of The Western Australian Institute of Technology (see letterpress on pages 172-5).

### Technical Education

The Technical Education Division provides instruction in eleven 'areas of study', namely Agriculture; Apprenticeships and Post-trade Courses; Art; Building and Architecture; Business and Commercial Studies; Engineering (including Aeronautical); General Studies; Health and Psychology; Home Economics; Management; and Mathematics and Science.

Institutions under the control of the Technical Education Division at 31 December 1971 comprised five technical colleges (Fremantle, Leederville, Mount Lawley, Perth, and the Technical Extension Service), six technical schools (Bunbury, Carlisle, Claremont, Eastern Goldfields, Midland and Wembley), nine technical centres with full-time officers in charge, and sixty-six technical centres with part-time officers in charge. The Division has a Counselling Service which is available to advise students in selecting a course, to assist them in their studies, and to provide consultant services to industry and commerce on staff selection and training.

Technician-level studies are usually designed as diploma or certificate courses, for which the minimum entry requirement is the satisfactory completion of three years of secondary education or its accepted equivalent. Although these courses were originally on the basis of part-time study, some of them are now also available by full-time study, and other part-time courses at these levels are being progressively redesigned on a full-time, or partially full-time, basis. This means that an increasing number of subjects in these courses are becoming available to part-time students who can obtain day release from their employers to attend classes. Diploma and certificate courses are conducted, wholly or partly, at technical colleges and schools, and subjects in the early stages of a number of courses are also available at some technical education centres.

Details of teaching positions and student enrolments in the five years 1967 to 1971 are given in the table on page 169.

## TECHNICAL EDUCATION

Particulars	1967 (a)	1968	1969	1970	1971
COLLEGES (b)					
Number of—					
Colleges (c) ....	1	5	5	5	5
Teaching positions (d)—					
Full-time ....	67	340	383	419	441
Part-time ....	389	711	620	744	755
Student enrolments (e) ....	7,118	33,949	31,991	34,854	29,757
SCHOOLS					
Number of—					
Schools (c) ....	9	6	6	6	6
Teaching positions (d)—					
Full-time ....	339	149	168	191	201
Part-time ....	531	269	289	277	327
Student enrolments (e) ....	21,847	10,836	11,747	11,540	12,888
CENTRES					
Number of—					
Centres (c) ....	24	69	81	71	75
Teaching positions (d)—					
Full-time ....	17	18	20	32	21
Part-time ....	485	718	849	851	884
Student enrolments (e) ....	10,312	16,829	21,613	20,618	21,443
OTHER SERVICES (f)					
Number of—					
Services (c) ....	3	3	3	3	3
Teaching positions (d)—					
Full-time ....	74	21	27	30	30
Part-time ....	417	124	96	244	244
Student enrolments (e) ....	20,475	2,386	3,487	3,243	5,417
TOTAL					
Number of—					
Colleges, schools, centres, and other services (c) ....	37	83	95	85	89
Teaching positions (d)—					
Full-time ....	497	528	598	672	693
Part-time ....	1,822	1,822	1,854	2,116	2,210
Total ....	2,319	2,350	2,452	2,788	2,903
Student enrolments (e)—					
Males ....	39,140	38,557	40,197	(g) 42,603	(g) 40,476
Females ....	20,612	25,443	28,641	(g) 27,652	(g) 29,029
Total ....	59,752	64,000	68,838	70,255	69,505

(a) During 1967 much of the senior work of the Technical Education Division was transferred to The Western Australian Institute of Technology (see pages 172–5). (b) From 1968 includes Technical Extension Service. (c) At 31 December. (d) At 1 July. A teacher may occupy teaching positions at more than one institution; the number of individual teachers is not available. (e) A student is counted once for each course undertaken during the year. (f) Adult Aboriginal Education Classes, Youth Education Classes, Counselling Service, and teachers in administrative positions. The Technical Extension Service is also included for 1967; see footnote (b). (g) Estimated. A few small centres were unable to provide separate figures for males and females.

Programmes of study are available for students wishing to undertake examinations organised by other examining bodies such as the Public Examinations Board (see page 180), The Royal Society of Health and a number of Commonwealth and State Government Departments.

Vocational courses, including apprenticeship training, may be taken at colleges and schools close to Perth, at the Bunbury and Eastern Goldfields Technical Schools and at the Geraldton and Albany Technical Education Centres. In addition, there are many courses and subjects which help students to develop useful and interesting leisure-time activities.

The Technical Education Division has a number of evening technical centres in the metropolitan area and in country towns. These centres, which are located in government school buildings, offer those subjects for which there is sufficient local demand and for which suitable facilities and staff are available. The subjects provided fall into the categories of general education, including Public Examination and pre-diploma subjects, accounting, business studies and commercial subjects, and leisure-type activities.

The Technical Extension Service, through its correspondence courses, caters for a wide range of instruction for students who are unable to attend formal classes because of remoteness or individual limitations such as physical disability. In larger country centres, correspondence instruction is supplemented by the provision of study groups which students may attend for one period a week to do their correspondence work in the local school under the supervision of a teacher who is able to assist in interpretation of material and in the presentation of answers. The technical aspects of this instruction are the responsibility of specialist tutors employed in the Service.

The Technical Education Division collaborates with two Commonwealth Government authorities, the Department of Immigration and the Department of Education (see page 181), in providing courses in the English language for adult migrants. The Division conducts an Adult Aboriginal Education programme which, although designed mainly to develop literacy, also conducts classes in community obligations, home skills, employment skills and leisure-time activities.

### Teacher Education

Teacher education is conducted by the Education Department at five colleges especially established for the purpose, the first at Claremont in 1902, the second at Graylands in 1955, the third (for secondary teachers) on a site adjacent to the University in 1967, the fourth at Mount Lawley in 1970, and the fifth at Churchlands in 1972.

TEACHERS COLLEGES

Particulars	1967	1968	1969	1970	1971
Number of—					
Lecturers (a) .....	82	109	133	154	187
Students enrolled (a)—					
Departmental (b)—					
Primary course .....	860	993	1,137	1,285	1,468
Secondary course .....	911	931	1,050	1,205	1,313
On study leave .....	48	49	43	63	62
Private (b) .....	47	41	40	46	83
Total .....	1,866	2,014	2,270	2,599	2,926
Students graduating—					
Departmental (b) .....	635	695	668	715	774
Private (b) .....	35	29	22	13	24
Total .....	670	724	690	728	798

(a) At 1 August. (b) 'Departmental' students are those who have entered into an agreement to serve with the Education Department for a specified period after completion of the course; 'Private' students are those who have not entered into such an agreement.

The basic course is of three years' duration. The minimum requirement for entrance is a pass in English and three other subjects of the Leaving Examination, or its equivalent. Selected students may study in extended fields for periods of from three to six years to obtain University degrees and/or other qualifications. There is also a one-year training

course open to University graduates and to associates of The Western Australian Institute of Technology.

The total number of students enrolled at 1 August 1972 was 3,525. Of this total, 663 were at the Claremont college, 430 at the Graylands college, 1,575 at the secondary teachers college, 670 at the Mount Lawley college, and 187 at the Churchlands college.

### NON-GOVERNMENT SCHOOLS

The non-government schools, which are conducted mainly by religious organisations, provide education from kindergarten to the end of the secondary school course, equivalent to the final year in the government high schools. The curriculum at the primary and secondary levels is substantially the same as that in the government schools.

#### NON-GOVERNMENT SCHOOLS

Particulars	At 1 August—				
	1967	1968	1969	1970	1971
<b>NUMBER OF SCHOOLS</b>					
Primary and secondary—					
Church of England .....	9	9	9	8	9
Methodist .....	3	3	3	3	3
Presbyterian .....	2	2	2	2	2
Roman Catholic .....	174	171	168	168	169
Other denominations .....	10	10	10	10	10
Undenominational .....	4	4	4	5	7
Kindergarten .....	193	186	209	229	253
<b>Total</b> .....	<b>395</b>	<b>385</b>	<b>405</b>	<b>425</b>	<b>453</b>
<b>NUMBER OF TEACHERS (a)</b>					
Primary and secondary—					
Church of England .....	212	228	236	260	259
Methodist .....	90	99	107	107	117
Presbyterian .....	74	79	81	91	99
Roman Catholic .....	924	945	976	1,005	1,082
Other denominations .....	40	43	44	45	48
Undenominational .....	7	8	12	12	19
Kindergarten .....	371	352	374	459	492
<b>Total</b> .....	<b>1,718</b>	<b>1,754</b>	<b>1,830</b>	<b>1,979</b>	<b>2,116</b>
<b>NUMBER OF PUPILS</b>					
Primary and secondary—					
Church of England .....	3,838	3,970	4,103	4,138	4,123
Methodist .....	1,731	1,782	1,859	1,944	2,041
Presbyterian .....	1,331	1,393	1,455	1,503	1,579
Roman Catholic .....	32,315	32,861	33,088	33,700	33,520
Other denominations .....	892	972	953	967	1,062
Undenominational .....	7,352	7,579	8,786	9,893	11,420
<b>Total</b> .....	<b>47,459</b>	<b>48,557</b>	<b>50,244</b>	<b>52,145</b>	<b>53,745</b>
Grade of education—					
Kindergarten .....	8,098	8,318	9,436	10,587	12,064
Primary .....	24,551	24,768	24,929	25,312	25,228
Secondary—Years 1, 2 and 3 .....	11,389	11,822	11,972	12,272	12,268
Years 4 and 5 .....	3,421	3,649	3,907	3,974	4,185
<b>Total</b> .....	<b>47,459</b>	<b>48,557</b>	<b>50,244</b>	<b>52,145</b>	<b>53,745</b>
Males .....	22,776	23,379	24,373	25,215	26,111
Females .....	24,683	25,178	25,871	26,930	27,634
<b>Total</b> .....	<b>47,459</b>	<b>48,557</b>	<b>50,244</b>	<b>52,145</b>	<b>53,745</b>

(a) Excluding persons on leave without pay and persons teaching part-time.

**Kindergarten Schools.** The Education Act requires that every person conducting a kindergarten must hold a permit issued for the purpose by the Education Department. The Kindergarten Association of Western Australia, Incorporated, a voluntary organisation subsidised from government funds, maintains a training college for kindergarten teachers.

At 1 August 1971 the number of kindergartens registered with the Education Department was 253 of which 126 were affiliated with the Kindergarten Association.

Details of staff and children enrolled at the kindergartens affiliated with the Association and particulars of staff and students at the training college appear in the following table.

#### KINDERGARTEN ASSOCIATION OF WESTERN AUSTRALIA

Particulars	1967	1968	1969	1970	1971
<b>KINDERGARTEN TEACHERS COLLEGE</b>					
Number of—					
Professional staff (a) ....	5	7	7	7	9
Students—					
New enrolments (b) ....	28	22	42	29	35
Total enrolments (b) ....	72	71	90	86	93
Graduating ....	17	21	28	25	33
<b>KINDERGARTENS</b>					
Number of (a)—					
Kindergartens ....	83	94	106	114	124
Children enrolled ....	4,420	4,770	5,676	6,466	7,220
Staff—					
Teachers ....	92	95	111	141	170
Other ....	81	100	105	132	175

(a) At 30 June.

(b) At 1 April.

#### THE WESTERN AUSTRALIAN INSTITUTE OF TECHNOLOGY

The Western Australian Institute of Technology is a college of advanced education, established in terms of the *Western Australian Institute of Technology Act, 1966-1971* as an autonomous body under the control of a governing council. The main functions of the Institute, as set out in the Act, are to provide facilities for higher specialised instruction and to advance training in the various branches of technology and science; to aid the advancement, development and practical application to industry of science or any techniques; and to encourage and provide facilities for the development and improvement of tertiary education whether on a full or part-time basis to meet the needs of the community in the State.

Buildings for the Institute were commenced in 1963 on a site of some 277 acres at Bentley, approximately seven miles from the Perth city centre, and the initial group of buildings was officially opened on 17 August 1966. The administration and associated buildings were officially opened on 11 October 1968.

The Institute conducts courses leading to a degree, an associateship or a diploma. The courses vary in duration, requiring either three years or four years of full-time study or the part-time equivalent. (In the case of Architecture the three-year full-time course is followed by two years' part-time study while in approved employment.) The normal entrance requirement is that a student shall have attained an aggregate of 270 or more on percentage marks obtained in English and four other subjects of the Leaving Examination, or shall have passed the qualifying examination (at Leaving standard) conducted by the Technical Education Division of the Education Department. In some courses a student over the age of twenty-three years without the normal entrance requirements may sit for an Institute Mature Age Examination to gain admission. Qualifications held by students entering from secondary schools in other States or countries, or from other institutions, are assessed prior to admission to courses.

The teaching work of the Institute is organised under several Divisions, each comprising a number of Departments. The fields of study covered in 1973 include: *Department of Accounting and Business Studies*—Accounting, Secretarial and Administrative Practice, Valuation; *Department of Architecture*—Architecture, Quantity Surveying, Town and Regional Planning; *Department of Art and Design*—Art, Art Teaching, Fine Art, Industrial Arts, Design; *Department of Chemistry*—Applied Chemistry, Applied Geology; *Department of Civil Engineering*—Civil Engineering; *Department of Computing and Data Processing*—Computing, Information Processing; *Department of Electrical Engineering*—Electrical Engineering, Electronic Engineering, Communications Engineering; *Department of English and Language Studies*—English, Language Studies, Asian Studies; *Department of Home Economics*—Home Economics, Nutrition; *Department of Library Studies*—Library Studies; *Department of Mechanical Engineering*—Mechanical Engineering, Production Engineering, Metallurgy; *Department of Medical Technology*—Medical Laboratory Technology, Dental Therapy, Environmental Health; *Department of Pharmacy*—Pharmacy, Applied Biology; *Department of Physics*—Applied Physics, Geophysics, Diagnostic Radiography, Therapeutic Radiography; *Department of Psychology and Social Work*—Applied Psychology, Social Work; *Department of Social Sciences*—Social Sciences; *Department of Surveying*—Surveying; *Department of Therapy*—Occupational Therapy, Physiotherapy.

In addition, there is a Department of External Studies. Tuition is available in some of the courses leading to a degree, an associateship or a diploma.

The Institute offered degree courses for the first time in 1973. These are available in Applied Chemistry, Applied Physics, Business (with options in Accounting, Management and Secretarial Administration), Pharmacy, Social Science, and Surveying.

Under the Commonwealth Advanced Education Scholarship Scheme, the Commonwealth Government provides assistance to students at colleges of advanced education. Scholarships are awarded on merit and provide for the payment of all compulsory fees and a living allowance which is subject to a means test.

Bursaries which provide full or partial remission of fees and the payment of an annual allowance, subject to a means test, are available to assist deserving students who might otherwise be prevented from undertaking a course at the Institute.

On 1 January 1969 the Institute took over the administration and academic control of the Royal Perth Hospital School of Occupational Therapy, the School of Physiotherapy, the School of Mines of Western Australia and Muresk Agricultural College.

### **School of Mines of Western Australia**

The School of Mines of Western Australia was established at Coolgardie in 1902 and was transferred to Kalgoorlie in the following year. Control of the School of Mines, formerly part of the Department of Mines, passed to The Western Australian Institute of Technology in January 1969. The number of students enrolled in 1971 was 216.

Associateship courses are available in Accounting, Engineering (Civil, Electrical, Mechanical, Mining), Metallurgy, and Mining Geology. These courses extend over three years of full-time study or the part-time equivalent. A diploma course in Mining Technology extending over two years of full-time study, or the part-time equivalent, is also provided.

Through the Kalgoorlie Metallurgical Laboratory, the School undertakes metallurgical investigations as well as assays for gold or for other metals. Free assays and mineral determinations are made available for *bona fide* prospectors.

The School has a geological museum which is open to the public and contains rocks and minerals from all over Australia and elsewhere.

### **Muresk Agricultural College**

Muresk Agricultural College, situated eight miles south of Northam in the Avon valley, was established by the Department of Agriculture in 1926. Control of the College was transferred to The Western Australian Institute of Technology in January 1969.

The College course, which is at tertiary level, leads to a Diploma in Agriculture. It is of two years' duration and is fully residential. The course is designed to give a sound scientific, technical and managerial training suitable for those wishing to become farm owners or managers, or to work in industries servicing agriculture. The subjects studied are Plant Sciences and Husbandry, Animal Sciences and Husbandry, Agricultural Engineering, Farm Management, Soil Science, Humanities and Practical Farm Work. Instruction is given by means of lectures, assignments, laboratory and workshop practical work, demonstrations, tutorials, day tours to farms and research stations, extended tours into the agricultural areas, and practical farming on the College estate.

The estate of 2,222 acres is devoted to mixed farming and provides the students with an opportunity to gain a considerable amount of practical experience by observation, demonstration and actual participation in a wide variety of farming activities. Use is made of the College facilities for various research projects. High quality stock from the College's herds and flocks is available to Western Australian farmers.

From time to time short courses are held at the College. These include in-service training schools for personnel of the Department of Agriculture and for field and service staff of agricultural firms.

The number of students enrolled at the College in 1971 was sixty-one.

### Finance

The following table relates to income and expenditure of The Western Australian Institute of Technology in each year from 1967 to 1971.

#### THE WESTERN AUSTRALIAN INSTITUTE OF TECHNOLOGY—FINANCE (\$'000)

Particulars	1967	1968	1969	1970	1971
<b>INCOME</b>					
Income for specific capital purposes (a)—					
Commonwealth Government grants	281	697	1,765	1,192	2,045
State Government grants	281	697	1,765	1,192	2,045
Total	562	1,394	3,530	2,384	4,090
Income for other purposes—					
Commonwealth Government grants	639	883	1,395	2,017	2,648
State Government grants	1,129	1,485	2,233	3,203	4,300
Donations and endowments	6	45	54	28	20
Student fees (b)	53	153	289	529	635
Other	....	5	59	94	452
Total	1,828	2,570	4,030	5,871	8,055
<b>TOTAL INCOME</b>	<b>2,390</b>	<b>3,964</b>	<b>7,560</b>	<b>8,255</b>	<b>12,145</b>
<b>EXPENDITURE</b>					
Salaries and wages	1,239	2,047	2,595	4,351	5,870
Library	57	29	48	78	96
Buildings, grounds and equipment	674	1,420	3,580	2,532	4,306
Minor equipment	195	62	94	211	189
Sundry auxiliary expenditure	218	361	1,203	1,003	1,291
<b>TOTAL EXPENDITURE</b>	<b>2,383</b>	<b>3,918</b>	<b>7,520</b>	<b>8,175</b>	<b>11,752</b>

(a) Income received specifically for new buildings, major alterations and additions to buildings, installation of services, purchase of land and buildings and major equipment. (b) Excludes fees collected on behalf of student organisations.

### Teachers, Students and Awards Conferred

The following table gives particulars of teaching staff in each of the years 1967 to 1971. The number of associateships and diplomas conferred is also shown.

## THE WESTERN AUSTRALIAN INSTITUTE OF TECHNOLOGY

Particulars	1967	1968	1969	1970	1971
NUMBER OF TEACHING STAFF (a)					
Full-time—					
School and department heads	12	13	16	21	21
Senior lecturers	14	31	37	49	63
Lecturers	157	133	149	171	194
Assistant lecturers, tutors, demonstrators, etc.	75	75	101	114	158
Total, Full-time	183	252	303	355	436
Part-time (b)—					
Teaching staff	n.a.	21	35	32	36
Supporting staff	n.a.	2	4	7	7

STUDENT ENROLMENTS (c)					
Full-time	1,224	1,558	1,680	1,824	2,202
Part-time	1,609	1,931	2,565	*3,112	3,498
Correspondence	...	223	334	463	608
Total	2,833	3,712	4,579	*5,399	6,308
Males	n.a.	3,119	3,776	*4,476	5,113
Females	n.a.	593	803	*923	1,195
Total	2,833	3,712	4,579	*5,399	6,308

## ASSOCIATESHIPS AND DIPLOMAS CONFERRED

School or department—					
Accounting and business studies	10	17	13	32	49
Administrative studies	8	31	31	30	48
Agriculture	...	...	17	30	15
Architecture	15	41	21	16	44
Art and design	12	7	13	23	42
Chemistry	14	17	14	23	30
Engineering—					
Civil	26	25	31	40	37
Electrical	13	16	16	24	26
Mechanical	20	10	16	17	22
Home economics	7	16	18	22	26
Mathematics	...	1	5	5	7
Medical technology	...	...	...	21	33
Mines	...	...	7	19	21
Pharmacy	18	29	46	28	25
Physics	20	19	22	16	16
Surveying	...	...	...	19	19
Therapy	...	...	31	30	25
General studies	3	25	29	38	62
Total	166	254	330	433	547
Males	n.a.	226	260	343	422
Females	n.a.	28	70	90	125
Total	166	254	330	433	547

n.a. denotes 'not available'.

(a) At 30 June. (b) Expressed on the basis of full-time staff equivalents. (c) A student is counted once for each course undertaken during the year. Figures for 1967 and 1968 are at 30 June; for 1969 at 30 September; for 1970 at 30 April; and for 1971 at 23 December. \* Revised.

## THE UNIVERSITY OF WESTERN AUSTRALIA

University education first became available in Western Australia in 1898, with the formation of the Extension Committee of the University of Adelaide by which facilities were provided for external studies in courses for degrees in Arts and Science. The first step towards the establishment of a university in Western Australia was taken in 1904, when a University Endowment Act providing for the incorporation of a trust to administer funds for the purpose was passed by the State Parliament. Following a favourable report made by a Royal Commission under the chairmanship of Dr (later Sir Winthrop) J. W.

Hackett, the University was established by the University of Western Australia Act of 1911. Teaching began in 1913 in subjects related to the Faculties of Arts, Science and Engineering. Additional Faculties established since that time are those of Law (1927), Agriculture (1936), Dental Science (1946), Education (1947), Economics (1954), Medicine (1956) and Architecture (1966). The Faculty of Economics was reconstituted as the Faculty of Economics and Commerce in 1961.

### **Matriculation Requirements**

A student wishing to matriculate at the University must pass the Leaving Examination in five subjects from specified groups at leaving level, and at matriculation level in three of the subjects taken at leaving level, provided that one of these eight passes shall be in English or English Literature. The matriculation level examinations require a student 'to give more evidence of ability and experience in study in depth'. A candidate must pass all these examinations in the same year, or pass all the leaving level examinations in one year and the matriculation level examinations in the following year. A part-time student is allowed up to three consecutive years to complete the requirements.

Matriculant status may be granted to an applicant who has satisfied the examination requirements of another university in Australia, New Zealand or the United Kingdom, or of any other university recognised by the University of Western Australia, qualifying him for matriculation.

The regulations provide for a Mature Age Examination enabling the provisional admission to some University courses of persons over the age of twenty-one years who have not otherwise qualified for matriculation. Candidates take certain papers in the Leaving Examination as follows : English at leaving level ; one other subject selected from a specified list at both leaving and matriculation levels. A pass in the Mature Age Examination is recognised as qualifying for provisional admission to the Faculty of Arts (for Bachelor of Arts and Bachelor of Psychology degree courses) and to the Faculties of Education and Economics and Commerce. Full matriculation status is granted on successful completion of the first academic year, *i.e.* a pass in four first-year units of the course of study.

Provision is made for admission to some Faculties of persons holding certain certificates or diplomas or other specified qualifications.

### **Degrees and Diplomas**

Degrees are granted in the Faculties of Arts, Law, Education, Economics and Commerce, Science, Engineering, Agriculture, Dental Science, Medicine and Architecture.

Courses for the degrees of Bachelor of Arts, Bachelor of Economics, Bachelor of Commerce and Bachelor of Science extend over a period of not less than three years; those for the degrees of Bachelor of Music, Bachelor of Psychology, Bachelor of Education, Bachelor of Engineering and Bachelor of Science in Agriculture, over not less than four years; and those for the degrees of Bachelor of Dental Science and Bachelor of Architecture over not less than five years. The course for the degree of Bachelor of Jurisprudence extends over a period of not less than three years, following successful completion of the first year of a course in any faculty other than the Faculty of Law, and that for the degree of Bachelor of Laws over a period of not less than four years, following successful completion of the first year of a course in any faculty other than the Faculty of Law. Honours degree courses in Arts, Music, Psychology, Economics, Education, Commerce and Science are usually of four years' duration. The course in the Faculty of Medicine for the degrees of Bachelor of Medicine and Bachelor of Surgery extends over six years, and that for the degree of Bachelor of Medical Science over four years or five years according to the subjects taken. The degrees of Master of Arts and Doctor of Letters, Master of Music and Doctor of Music, Master of Psychology, Master of Laws and Doctor of Laws, Master of Education, Master of Economics, Master of Commerce, Master of Science and Doctor of Science, Master of Engineering Science, Master of Engineering and Doctor of Engineering, Master of Science in Agriculture and Doctor of Science in Agriculture, Master of Dental Science and Doctor of Dental Science, Master of Surgery and Doctor of Medicine,

Master of Architecture, Master of Building Science and Master of Social Work are conferred by the University. The degree of Doctor of Philosophy is also given for research in all faculties.

There are some postgraduate courses leading to a diploma. These are the Diploma in Education and the Diploma in Computation. The Diploma in Numerical Analysis and Automatic Computing and the Diploma in Social Work (see table on page 179) are no longer awarded.

### **University Government**

The original Act provided that the Senate and Convocation should constitute the governing authority with power to make statutes for 'the management, good government and discipline of the University'.

The Senate consists of twenty-five members, of whom six are appointed by the Governor, six are elected by Convocation, four are elected by the full-time teaching staff, two are elected by students, three are *ex officio* members (the Vice-Chancellor of the University, the Director-General of Education and the President of the Guild of Undergraduates), and four are co-opted members. Convocation consists of graduates of the University and such other persons as are eligible for membership under the provisions of the University of Western Australia Act.

Since an amendment to the Act in 1944 the Senate alone has been the governing authority and is responsible, subject to the Act and the statutes, for the entire control and management of the University. Statutes originate in the Senate and are submitted to Convocation for its consideration, and although Convocation may suggest amendments the Senate is not bound to accept them. The Act requires that statutes shall be submitted to the Governor for approval, after which they have the force of law.

The Chancellor is the titular head of the University. He is elected annually by the Senate from among its members and presides over its meetings. The Vice-Chancellor is the chief executive officer of the University and is appointed by the Senate for a period not exceeding ten years, at the end of which term he is eligible for reappointment. At meetings of Convocation the chairman is the Warden who is elected annually by Convocation from among its members.

The Guild of Undergraduates is constituted under the Act as an association of undergraduates 'for furthering of their common interests, and shall be the recognised means of communication between the undergraduates and the governing authority of the University'. The government of the student body is vested in the Guild Council, to which members are elected in accordance with regulations made by the Guild.

### **Student Fees and Scholarships**

The Royal Commission appointed to inquire into the establishment of a University recommended that teaching should be free and suggested that 'if fees are found to be necessary, they should be on the lowest possible scale'. Until 1962 lecture fees were not charged to students normally resident in Australia, except those in the Faculty of Medicine, where tuition fees were payable in the second and later years, and those enrolled at the Western Australian College of Dental Science, an institution affiliated with the University, who paid lecture fees to the College. All students paid a 'faculty service charge' designed to cover such items as the use of the library, annual examination fees, the use of laboratory equipment, and the lecture synopses provided in some courses. To assist in meeting the increasing costs of operation resulting from a rapidly growing student population and to enable the University to take full advantage of financial aid available under Commonwealth legislation, a system of annual 'enrolment fees' was introduced in 1962. The current tuition fees are based on an annual course fee for all full-time bachelor degree courses. Part-time students' fees are assessed proportionately, according to the number and type of subjects to be taken during the year. The fees for higher degree students are also related to the basic scale. Subscriptions to the Guild of Undergraduates and to certain faculty associations are payable by all students enrolled for one or more full units towards a bachelor degree or a diploma.

Financial assistance is available to students under the Commonwealth University Scholarship Scheme. Awards are made on merit and, in addition to having their compulsory fees paid, scholarship holders may receive a living allowance which is subject to a means test. Hackett Bursaries are offered each year for students of merit whose means make it difficult for them to undertake or continue a full-time undergraduate course. The State Government provides a number of University Exhibitions for competition among candidates at the Leaving Examination. In addition, the University is able to grant a limited number of fees bursaries each year from special endowment funds.

As well as the normal awards under the Commonwealth University Scholarship Scheme, there is provision in the scheme for financial assistance for post-graduate studies in the form of a living allowance, which is not subject to a means test, and payment of fees. The University also provides, from its own funds, research studentships for post-graduate study which are competed for by students holding no other award and having an Honours degree of second class (Division A), or higher, standard. Hackett Scholarships, tenable at the University of Western Australia or in special circumstances at other recognised institutions in Australia, are open to graduates of the University. Graduates may also apply for Hackett Studentships which, in addition to other financial benefits, may carry a travel grant where the Student elects to study overseas or in another State. Some large private industrial concerns also make annual awards for study at post-graduate level.

The State Government makes a contribution towards tuition fees where a student does not receive other financial assistance, or where such assistance is equal to or is less than one-half the tuition fees. This subsidy ranges from one-sixth of the fees payable by an overseas student to one-half in the case of a full-time student permanently domiciled in Western Australia and proceeding to a first degree.

## Finance

The following table relates to the income and expenditure of the University of Western Australia in each year from 1967 to 1971. Information in greater detail is available in the publication *University Statistics: Part 3—Finance*, issued annually by the Commonwealth Statistician, Canberra.

### UNIVERSITY OF WESTERN AUSTRALIA—FINANCE (S'000)

Particulars	1967	1968	1969	1970	1971
<b>INCOME</b>					
Income for specific capital purposes (a)—					
Commonwealth Government grants	476	509	457	1,659	714
State Government grants	436	509	1,850	475	1,463
Total	912	1,018	2,307	2,134	2,177
Income for other purposes—					
Commonwealth Government grants	3,215	3,386	3,467	4,242	4,885
State Government grants	3,363	3,842	4,022	4,784	6,024
Donations and endowments	681	865	936	1,068	1,103
Student fees (b)	1,253	1,423	1,658	2,145	2,293
Other	723	852	885	1,023	1,091
Total	9,236	10,368	10,968	13,262	15,396
<b>TOTAL INCOME</b>	<b>10,148</b>	<b>11,386</b>	<b>13,276</b>	<b>15,396</b>	<b>17,573</b>
<b>EXPENDITURE</b>					
Teaching and research	6,303	6,693	7,184	8,849	10,468
Administration and general overhead	702	806	881	1,154	1,341
Libraries	416	480	554	663	829
Buildings, premises, grounds	2,046	2,098	2,121	2,653	3,207
Sundry auxiliary expenditure	790	992	1,007	1,034	1,381
<b>TOTAL EXPENDITURE</b>	<b>10,258</b>	<b>11,069</b>	<b>11,747</b>	<b>14,353</b>	<b>17,227</b>

(a) Income received specifically for new buildings, major alterations and additions to buildings, installation of services, purchase of land and buildings and major equipment.

(b) Excludes fees collected on behalf of student organisations.

### Teachers, Students, Degrees Conferred and Diplomas Granted

The following table gives particulars of teaching staff and students in each of the years from 1967 to 1971. The numbers of degrees conferred and diplomas granted during each of these years are also shown. Information in greater detail is available from the publications *University Statistics: Part 1—Students and Degrees Conferred* and *Part 2—Staff and Libraries*, which are issued annually by the Commonwealth Statistician, Canberra.

#### UNIVERSITY OF WESTERN AUSTRALIA

Particulars	1967	1968	1969	1970	1971
NUMBER OF TEACHING STAFF (a)					
Full-time—					
Professors ....	47	53	54	54	60
Readers ....	41	45	49	50	51
Senior lecturers ....	119	122	130	142	143
Lecturers ....	105	115	112	118	136
Assistant lecturers, tutors, demonstrators ....	58	68	84	91	105
Total, Full-time ....	370	403	429	455	495
Part-time (b)—					
Lecturing ....	30	32	22	25	27
Demonstrating, tutoring ....	355	468	490	505	523
Adult education classes ....	....	57	40	40	42
NUMBER OF STUDENTS (a)					
Internal, full-time ....	3,796	4,079	4,407	4,966	5,288
Internal, part-time ....	1,926	2,178	2,430	*2,464	2,692
External ....	305	310	314	*352	375
Total ....	6,027	6,567	7,151	7,782	8,355
Males ....	4,402	4,732	5,065	5,373	5,603
Females ....	1,625	1,835	2,086	2,409	2,752
Total ....	6,027	6,567	7,151	7,782	8,355
DEGREES CONFERRED AND DIPLOMAS GRANTED					
Degrees conferred (c)—					
Agriculture ....	25	31	20	42	43
Architecture ....	....	....	8	12	15
Arts ....	256	262	282	295	325
Commerce ....	24	31	41	50	35
Dental Science ....	13	9	22	14	19
Economics ....	47	32	44	61	60
Education ....	43	43	31	41	45
Engineering ....	37	41	95	66	79
Law ....	36	23	38	37	29
Medicine ....	39	45	53	53	55
Music ....	3	2	1	3	7
Psychology ....	13	7	24	26	21
Science ....	168	179	204	214	262
Total ....	704	705	863	914	995
Diplomas granted—					
Education ....	66	102	102	96	147
Social Work ....	6	6	9	9	12
Numerical Analysis and Automatic Computing	3	5	5	5	....
Computation ....	....	....	....	....	10
Total ....	75	113	116	110	169

(a) Figures shown for the years 1967 to 1969 are as at 30 June, and those for 1970 and 1971 at 30 April. (b) Figures represent units of 100 hours of teaching time per annum. (c) Excluding honorary degrees. \* Revised.

### Tuition

In addition to the normal lectures and tutorials for full-time students, courses for part-time students are offered in the Faculties of Arts, Education, and Economics and Commerce. Certain subjects may be taken at institutions affiliated with the University. These are The Western Australian Institute of Technology, the Secondary Teachers College, Claremont Teachers College, Graylands Teachers College and Mount Lawley Teachers College.

Residents of Western Australia living outside the metropolitan area are able to enrol as external students, for a limited range of subjects, in the Faculties of Arts, Education, and Economics and Commerce.

### **Colleges and Hall of Residence**

There are five residential colleges within the University. For men students, Saint George's College is conducted by the Church of England, Saint Thomas More College by the Roman Catholic Church and Kingswood College by the Methodist Church. Saint Catherine's College is an undenominational college for women students. A fifth college, Saint Columba, opened in 1971. It is conducted jointly by the Presbyterian Church and the Congregational Church for the accommodation of men and women students.

Currie Hall is an undenominational hall of residence for men and women students.

### **Public Examinations Board**

The Public Examinations Board, which is comprised of representatives of the University, the Education Department, and the non-government secondary schools, is constituted by University statute for the purpose of conducting the Junior and Leaving Examinations. The Junior Examination is in the process of being replaced by a schools assessment system. In 1973 only two schools will present candidates for the Junior Examination. The Leaving Examination is the final examination in the Western Australian secondary education system.

### **Extension Service**

The Adult Education and Extension Committee was established by the Senate of the University in 1968 as a result of the reorganisation of the former Adult Education Board which had been created by the University in 1928. In 1972 the Committee was renamed the Extension Committee and more emphasis is now placed on University extension activities. The policies of the Committee are implemented by the Director of the Extension Service. The headquarters of the organisation are at the University.

The Extension Service is responsible mainly for post-graduate and refresher courses as well as certain cultural activities. It works in close liaison with University departments and faculties. The Extension Service is engaged principally in conducting conferences, symposia and seminars. Members of its staff are also involved during the summer months in work connected with the annual Festival of Perth.

Adult Education classes are conducted at city premises in Perth as well as at the University, and various activities in the metropolitan and country areas are arranged. These are generally non-vocational in character. During the year several series of classes, lectures and discussions are conducted, and a Summer School is held at the University each year.

## **MURDOCH UNIVERSITY**

Since July 1970 a Planning Board has been working towards the establishment of a second university in Western Australia. The new university is to be named Murdoch University in honour of the late Professor Sir Walter Murdoch, K.C.M.G., C.B.E., M.A., Hon. D.Litt., Emeritus Professor of English in the University of Western Australia. Walter Logie Forbes Murdoch was one of the original professors when the University was opened in 1913. He retired from the Chair of English in 1939, and was Pro-Chancellor of the University from 1941 to 1943, and Chancellor from 1943 to 1948. He died at Perth on 30 July 1970 at the age of 95 years.

Murdoch University is to be established on a site of almost 600 acres south of the Swan River about eight miles from the Perth city centre and five miles from Fremantle. It will provide for both graduate and undergraduate studies in the humanities and sciences, and schools in Education and Veterinary Studies will offer courses from the opening year, planned for 1975.

Students who qualify for matriculation to the University of Western Australia in 1975 will also be eligible for admission to Murdoch University.

### STATE GOVERNMENT EXPENDITURE ON EDUCATION

The following table shows the amounts expended on education from State Government funds during the five-year period ended 30 June 1971.

Payments from the Consolidated Revenue Fund relate to recurrent expenditure on such items as departmental administration, teachers' salaries, transport of school children, scholarships and allowances, maintenance of buildings, assistance to private schools, and grants to the University of Western Australia.

Expenditure from the General Loan Fund is principally on capital works which include buildings at The Western Australian Institute of Technology, primary schools, high schools and technical schools. Purchases of furniture and equipment are also included.

#### STATE GOVERNMENT EXPENDITURE ON EDUCATION (\$'000)

Classification	1966-67	1967-68	1968-69	1969-70	1970-71
<b>CONSOLIDATED REVENUE FUND</b>					
Administration and general	1,277	1,383	1,461	1,879	2,401
Primary	17,524	19,814	22,087	26,441	32,730
Secondary	10,166	12,055	14,314	18,229	24,410
Technical	5,230	5,933	7,094	8,655	11,241
Agricultural	339	406	417	135	105
University	3,445	4,038	4,095	5,065	5,589
Training of teachers	2,506	2,901	3,565	4,698	6,131
Transport of school children	3,044	3,156	3,299	3,547	3,666
Other	42	37	20	14	59
<b>Total</b>	<b>43,573</b>	<b>49,722</b>	<b>56,352</b>	<b>68,664</b>	<b>86,333</b>
<b>GENERAL LOAN FUND</b>					
Primary	3,425	3,946	5,713	6,968	6,047
Secondary	4,191	3,447	2,883	3,165	3,480
Technical	726	1,526	1,041	1,270	1,588
Agricultural	12	25	13		
University	1,050	266	466	1,182	866
Training of teachers			8	470	1,468
Other	450	580	508	741	582
<b>Total</b>	<b>9,854</b>	<b>9,791</b>	<b>10,632</b>	<b>13,796</b>	<b>14,032</b>

### COMMONWEALTH FINANCIAL ASSISTANCE FOR EDUCATION

Although education is primarily the responsibility of the States, the Commonwealth Government has instituted a number of measures of direct assistance to students and educational institutions.

#### Department of Education

A Department of Education and Science was established by the Commonwealth Government in December 1966. The Department was abolished in December 1972 and its functions transferred to two newly-constituted Departments, namely, the Department of Education and the Department of Science.

The Department of Education is concerned with grants to the States for educational purposes, e.g. for universities, colleges of advanced education, teachers colleges, pre-school teachers colleges, science laboratories, school libraries, and technical education institutions. It is also responsible for assistance provided to students by means of several Commonwealth scholarship and grants schemes.

### Scholarships and Awards

The Department of Education administers five major scholarship schemes. The Postgraduate Award, University Scholarship and Advanced Education Scholarship schemes come within the authority of the Commonwealth Scholarships Board, which provides advice on the administration of the schemes and on policy matters connected with them. The Commonwealth Secondary Scholarship Scheme, which came into operation at the beginning of 1965, is administered by the Department of Education, with the co-operation of the State education authorities in selection examination arrangements. The Commonwealth Technical Scholarship Scheme also came into operation at the beginning of 1965.

Australian Agricultural Council Scholarships are awarded annually to two students in each State who qualify for a university scholarship and intend to undertake a degree course in agriculture or a related field of study.

The Aboriginal Study Grants Scheme was introduced in 1969. Grants made in Western Australia numbered 24 in 1969, 96 in 1970, 126 in 1971, and 169 in 1972. The Aboriginal Secondary Grants Scheme came into operation in 1970. The number of scholars in training in Western Australia was 596 in 1970, 660 in 1971, and 875 in 1972.

Detailed information on these schemes is contained in the annual reports of the Commonwealth Scholarships Board and the Department of Education and Science (from December 1972, the Department of Education). Further references appear in the *Official Year Book of the Commonwealth of Australia* published by the Commonwealth Statistician, Canberra.

#### COMMONWEALTH SCHOLARSHIPS AND AWARDS WESTERN AUSTRALIA

Scheme	Number of—						Expenditure (\$'000)		
	Scholarships awarded			Scholars in training at 30 June—					
	1970	1971	1972	1970	1971	1972	1969-70	1970-71	1971-72
Postgraduate—									
Research Award	29	29	26	89	88	87	228	*247	268
Course Award	6	6	2	.....	6	6			
University Scholarship	838	959	996	2,045	2,259	2,530	1,323	1,614	2,218
Advanced Education Scholarship	222	321	433	399	565	765	114	*310	384
Secondary Scholarship	780	804	777	1,475	1,545	1,536	482	492	501
Technical Scholarship	227	184	219	260	300	324	*75	78	82
Total	2,096	2,303	2,453	4,268	4,763	5,248	*2,222	*2,741	3,453

\* Revised.

### Universities

Following a report submitted by a committee of inquiry appointed to report on university finances and requirements, the Commonwealth, since 1951, has made grants to the States for recurrent expenditure on university purposes. Since 1958 the Commonwealth has also assisted with the capital needs of the universities for building projects and for equipment, and has provided grants for the building programmes of residential colleges affiliated with universities.

Commonwealth assistance to the States in respect of the recurrent expenditures of universities is provided on the basis of \$1 of Commonwealth money for every \$1.85 of income received by a university from fees and State grants. Grants in respect of capital expenditures are made on a \$1 for \$1 basis from the Commonwealth and the State.

In 1959, following the Report of the Committee on Australian Universities, the Commonwealth Government established the Australian Universities Commission under the *Australian Universities Commission Act 1959*. The principal function of the Commission is to advise on financial assistance for the maintenance and balanced development of Australian universities. Commonwealth financial assistance grants, based on the Commission's recommendations, have been authorised by a series of States Grants (Universities) Acts and Universities (Financial Assistance) Acts.

### **Colleges of Advanced Education**

Under the provisions of a series of States Grants (Advanced Education) Acts, the first of which was passed in 1965, the Commonwealth gives financial assistance to the States for the development of colleges of advanced education. These are institutions which provide mainly tertiary education and training with a vocational emphasis, as distinct from the academic education provided by the universities. The Commonwealth Advisory Committee on Advanced Education was established in 1965 to advise the Commonwealth Government on the development of the colleges.

Commonwealth assistance to the States in respect of recurrent expenditures is provided on the basis of \$1 of Commonwealth money for every \$1.85 of income received from fees and State grants. Grants in respect of capital expenditure are made on a \$1 for \$1 basis from the Commonwealth and the State.

### **Teachers Colleges**

Under the provisions of the *States Grants (Teachers Colleges) Act* 1967 grants were made to the States during the three years to 30 June 1970 by way of financial assistance for approved building projects in connection with teachers colleges. The *States Grants (Teachers Colleges) Act* 1970 provides for grants to the States during the period from 1 July 1970 to 30 June 1973. The total amount authorised by these Acts is \$54 million, of which Western Australia's share is \$5.6 million.

A condition of the grant to a State is that not less than 10 per cent of the student places attributable to the expenditure of the grant shall be available to 'private' students, *i.e.*, those who have not entered into an agreement or bond in relation to service with a State education authority for a period after completion of the course.

### **Pre-school Teachers Colleges**

The *States Grants (Pre-school Teachers Colleges) Act* 1968-1972 provides financial assistance to the States for the purposes of building projects in connection with pre-school teachers colleges. During the four-year period ending 31 December 1972 an amount of \$2.5 million was distributed among the States, Western Australia's share being \$175,000.

### **Science Laboratories and Equipment**

The States Grants (Science Laboratories) Acts authorise financial assistance for the provision of science laboratories and equipment for use in the teaching of science at secondary level in government and non-government schools.

### **School Libraries**

The *States Grants (Secondary Schools Libraries) Act* 1968 provided financial assistance to the States, during the period 1 January 1969 to 31 December 1971, for libraries at secondary schools and for the acquisition of library material and equipment for use in such libraries. The Act enabled an amount of \$27 million to be distributed among the States, Western Australia's share being \$2,031,600.

Under the provisions of the *States Grants (Secondary School Libraries) Act* 1971 the period of assistance is extended for a further three years, from 1 January 1972 to 31 December 1974. The total amount authorised by the Act is \$30 million, of which Western Australia's share is \$2,047,917.

### **Technical Training**

Under the provisions of the States Grants (Technical Training) Acts, grants are made to the States as a contribution towards the cost of buildings and equipment for use in trade training and technical education in government institutions.

### **Recurrent Expenditure of Non-government Schools**

The *States Grants (Independent Schools) Act* 1969-1972 provides moneys for the States to be paid to non-government schools as a contribution towards the recurrent (*i.e.* other than capital) expenditure incurred by those schools. Payments were first made in

respect of the year 1970. Assistance is in the form of a subsidy for each pupil enrolled for full-time education at the schools census date in August of each year. In respect of the years 1970 and 1971, the rate of subsidy was \$35 for each primary pupil and \$50 for each secondary pupil. In respect of the year 1972, the rate was \$50 for each primary pupil and \$68 for each secondary pupil.

### Research

The States Grants (Research) Acts authorise the provision of financial assistance to the States in support of research projects of particular merit, research being defined as 'systematic investigations in some branch of science or learning'. The Australian Research Grants Committee, established by the Commonwealth Government in 1965, evaluates research projects and makes recommendations concerning the selection of projects and the allocation of funds.

### Aboriginal Advancement

The States Grants (Aboriginal Advancement) Acts, the first of which came into operation in 1968, provide financial assistance to the States in connection with the welfare and advancement of Aborigines. Grants are made subject to the condition that a State shall spend an equivalent amount for this purpose from its own resources. Payments made under these Acts to Western Australia in relation to the education of Aborigines are shown in the table below.

### Capital Expenditure on Government Schools

In terms of the States Grants (Capital Assistance) Acts the Commonwealth provides financial assistance to the States in connection with expenditure of a capital nature on primary and secondary schools conducted by the States. The *States Grants (Capital Assistance) Act* 1971-1972 authorised expenditure of \$6.66 million in 1971-72, of which Western Australia received \$620,000. The *States Grants (Capital Assistance) Act (No. 3)* 1972 provides for grants amounting to \$13.34 million in 1972-73, Western Australia's share being \$1,242,000.

### Financial Summary

The following table shows the amounts received during the five years to 30 June 1972 in the form of Commonwealth financial assistance for education in Western Australia.

COMMONWEALTH FINANCIAL ASSISTANCE FOR EDUCATION  
WESTERN AUSTRALIA  
(\$'000)

Nature of assistance	1967-68	1968-69	1969-70	1970-71	1971-72
Assistance of a revenue nature—					
Aboriginal advancement .....	.....	.....	10	26	26
Colleges of advanced education .....	776	912	1,929	2,333	2,920
Independent (i.e. non-government) schools .....	.....	.....	862	1,682	2,064
Research grants .....	257	276	323	296	307
Universities .....	2,652	2,833	3,281	3,900	4,594
Total .....	3,685	4,021	6,405	8,237	9,911
Assistance of a capital nature—					
Aboriginal advancement .....	.....	203	160	250	290
Colleges of advanced education .....	1,304	874	1,050	1,903	1,899
Government schools .....	.....	.....	.....	.....	620
Pre-school teachers colleges .....	.....	14	161	.....	.....
School libraries .....	.....	168	596	779	765
Science laboratories in schools .....	912	921	921	921	911
Teachers colleges .....	1,817	582	201	3	1,132
Technical training .....	1,323	437	957	804	747
Universities .....	567	734	2,048	384	1,571
Total .....	5,923	3,933	6,094	5,044	7,935
GRAND TOTAL .....	9,608	7,954	12,499	13,281	17,846

## THE WESTERN AUSTRALIAN TERTIARY EDUCATION COMMISSION

A Committee was appointed by the Western Australian Government in August 1966 to investigate the future needs of Western Australia in relation to tertiary education, the institutions necessary to meet those needs, the appropriate form of control and government of tertiary institutions, and the future role and development of these institutions. The Committee published its recommendations in September 1967.

As a result of these recommendations a Tertiary Education Commission was formed in February 1969 as a standing advisory commission. Subsequently the *Western Australian Tertiary Education Commission Act, 1970*, which came into operation on 23 April 1971, established the Commission as a statutory corporate body.

The Act provides that the Commission shall consist of nine members, comprising a Chairman appointed by the Governor on the recommendation of the Minister; the Director-General of Education; the Under Treasurer of the State; the chief executive officers of the University of Western Australia, Murdoch University, and The Western Australian Institute of Technology; and three persons appointed by the Governor on the recommendation of the Minister.

The principal functions of the Commission are to promote, develop and co-ordinate tertiary education, having regard to the needs of the State and the financial and other resources available to it; to consider and make recommendations on the future development of tertiary education institutions (including the acquisition and reservation of sites), the levels of financial support requested by such institutions, the terms and conditions of appointment and employment of staff, the fees to be charged by each institution, and proposals for the establishment of new tertiary education courses; to co-ordinate the criteria for entrance to tertiary education institutions; and to determine the minimum requirements for new academic awards.

The Act also provides that the Commission shall confer and collaborate on matters relevant to tertiary education with Commonwealth and State Government Departments, the Australian Universities Commission, the Australian Commission on Advanced Education and other governmental bodies.

*Chapter V—continued*

**Part 2—Arts, Science and Recreation**

**PUBLIC LIBRARIES**

**The Library Board of Western Australia**

The Library Board of Western Australia, which is constituted under the provisions of the *Library Board of Western Australia Act, 1951-1965*, is responsible for all forms of public library services which are financed either wholly or in part from State funds. The Board consists of twelve members. The Director-General of Education is an *ex officio* member. Of the remaining eleven members, who are appointed by the Governor, five represent local government interests, five are nominated by the Minister for Education and one by the Library Association of Australia, Western Australian Branch.

The Board was set up as an independent statutory body in 1952. Its functions are to encourage and assist local authorities to establish public libraries and to co-ordinate those libraries into a State-wide system, to administer funds made available by the Government for this purpose, to provide for the training of librarians and library assistants and to advise the Minister for Education and participating bodies on matters of general policy relating to libraries. Under the provisions of the *Acts Amendment (Libraries) Act, 1955*, the administration of the Public Library of Western Australia was transferred to the Board on 1 December 1955 and its name changed to The State Library of Western Australia.

**THE LIBRARY BOARD OF WESTERN AUSTRALIA**

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
<b>Expenditure—</b>					
Salaries and wages .....	\$ 274,556	305,595	353,303	440,417	560,588
Books, periodicals and binding .....	\$ 352,649	416,065	484,201	543,291	583,517
Other .....	\$ 65,003	67,359	110,863	118,310	127,747
<b>Total .....</b>	<b>\$ 692,208</b>	<b>789,019</b>	<b>948,367</b>	<b>1,102,018</b>	<b>1,271,852</b>
<b>Number of—</b>					
Full-time staff (a)—					
Qualified librarians .....	24	25	22	31	33
Student librarians and cadets .....	21	25	20	23	17
Other .....	58	58	75	77	89
<b>Total .....</b>	<b>103</b>	<b>108</b>	<b>117</b>	<b>131</b>	<b>139</b>
Associated public libraries (a)—					
Perth Statistical Division .....	25	27	27	29	33
Other Statistical Divisions .....	86	98	99	104	106
<b>Total .....</b>	<b>111</b>	<b>125</b>	<b>126</b>	<b>133</b>	<b>139</b>
<b>Books—</b>					
Reference library stock—					
Bound volumes (a) .....	236,230	242,664	*249,612	*254,223	259,243
Periodical and serial titles received .....	6,368	7,787	8,143	8,289	8,397
Circulation library stock—					
Books processed for circulation .....	100,816	103,276	102,366	111,927	108,861
Net additions to stock .....	69,622	57,204	46,054	51,478	44,371
Stock at 30 June .....	606,379	657,149	703,203	754,681	799,052
Received and dispatched in the exchange programme with local libraries .....	223,864	270,862	298,322	310,020	330,416
Inter-library requests received .....	45,306	55,441	61,047	62,880	73,229
Central Music Library stock (a)—					
Number of—					
Books .....	3,665	3,900	4,175	4,386	4,656
Musical scores .....	12,723	11,999	12,731	13,239	13,725

(a) At 30 June. \* Revised.

The books in all public libraries in the State are supplied by the Board and remain its property. A fixed proportion, depending on its size, of the stock of every library is exchanged at least every two months. All books are catalogued and fully prepared for use before being issued to public libraries and the Board maintains all the central stock records. A catalogue in book-form of the books, arranged by subjects, in all libraries is published annually by the Board and supplied to all public libraries throughout the State and to all government senior high schools. This facilitates access by library users to the whole stock of the Board, through any library.

The library service of Western Australia consists of the State Reference Library, which functions as the reference division of the service, the Central Music Library, a number of independent public libraries jointly supported by local authorities and the Board, and the State Bibliographical Centre which links all libraries in the State.

### **State Reference Library**

The State Reference Library differs from other libraries in that its function is not principally to supply books but to provide information in answer to inquiries. It handles some 125 serious or research inquiries per day, and for this purpose is divided into five specialist subject units comprising four libraries and one centre.

The J. S. Battye Library of West Australian History was developed from the former Archives Branch. All material relating to Western Australia, including the State archives, has been concentrated in this library. The other libraries are The Library of Business, Science and Technology, The Library of Social Sciences, Philosophy and Religion and The Library of Literature and the Arts. The Information Centre is equipped with current Australian and overseas telephone and trade directories, business guides, commercial publications and a wide variety of similar quick reference material. The Centre is designed principally to provide immediate answers to inquiries, mainly in the commercial field. Current newspapers, which include all those published in Western Australia, the main ones from other Australian States and a representative selection from overseas countries, are available for reference in the Information Centre.

The State Reference Library is fully equipped with micro-film and photo-copy apparatus and copies of material are available on payment of an appropriate fee. In addition to providing reference library facilities for the metropolitan area, its service extends throughout the State, through the agency of a local public library wherever possible but also by post direct to country inquirers not in contact with a local library.

### **Central Music Library**

The Central Music Library, situated in the State Reference Library building, is the principal music library of the State. It offers a full reference service in the field of music and scores are available on loan. Facilities are also provided for listening to musical recordings.

### **Local Public Libraries**

At 30 June 1972 there were 139 local public libraries associated with the Library Board's service. The local government authorities conducting these libraries provide accommodation and staff, while the Library Board provides all the books and bibliographical services. The administrative independence of the local libraries is secured under the provisions of the *Library Board of Western Australia Act, 1951-1965*. Apart from exercising a statutory obligation in respect of the expenditure of State subsidies, the Board takes no direct part in the administration of local public libraries. Books are provided on a minimum basis of 1.1 volumes per head of the population of the district concerned and all non-fiction books in public libraries throughout the State are made available on request to the Board at any library associated with its library service.

### **State Bibliographical Centre**

The purpose of the State Bibliographical Centre is to encourage and facilitate co-operation between all libraries in Western Australia so that the total resources in the State may be made as widely available as possible to all library users.

The Centre operates the Request and Information Service provided by the Board for all public libraries, organises inter-library loans for or between any other approved libraries in the State or elsewhere, and offers bibliographical assistance to any library and to users of the State Reference Library. For these purposes it is equipped with catalogues of the whole stock of the Library Board and with union catalogues of both books and journals in some 150 other libraries ranging from those of the University of Western Australia and The Western Australian Institute of Technology to highly specialised collections held by private firms or government departments. It also has a very large range of published bibliographies from many parts of the world.

### THE WESTERN AUSTRALIAN MUSEUM

The Western Australian Museum has developed from two earlier collections. One of these, the museum of the Swan River Mechanics' Institute, was founded by public subscription in 1860, and the other, the Geological Museum at Fremantle, was started in 1881. In 1889 the contents of the Geological Museum were moved to the former Perth Gaol (which is still part of the Western Australian Museum) and a Curator was appointed in 1891. In the following year the museum of the Swan River Mechanics' Institute was purchased, and the collections combined to form the Public Museum which, in 1897, became known as the Western Australian Museum.

Under the provisions of the *Museum Act, 1969*, The Western Australian Museum is governed by seven Trustees appointed by the Governor. The staff includes a Director, a Deputy Director, two Senior Curators, twelve Curators and other professional and technical staff, and is grouped functionally within Divisions of Natural Science and Human Studies, service departments and a small administrative unit.

The headquarters of The Western Australian Museum and its principal display galleries are situated in Perth. A branch of The Western Australian Museum containing maritime and historical displays was established at Fremantle in 1970. It is governed by a Committee of Management appointed by the Minister responsible for the Museum Act.

The work of the Museum relates mainly to natural sciences and human studies. It contains collections devoted to zoology, palaeontology, meteorites, archaeology, anthropology, history, technology and military exhibits. Emphasis in both display and research is on the fauna and the human population, past and present, of Western Australia. There is an extensive scientific library which also houses the library of the Royal Society of Western Australia. Research within the Division of Natural Sciences is related specifically to marine fauna, mammals, birds, reptiles, insects and fossils of the State. The Division of Human Studies is concerned with prehistoric archaeology and art, Aboriginal material culture, colonial history, maritime history, underwater archaeology, industrial and agrarian technology, and arms and armour.

The *Museum Act, 1969* allows the Trustees to assist in establishing and maintaining municipal museums. The Museum's role is mainly to assist by making available the expertise of its own staff in designing layout, advising on material and restoration problems, and lending showcases and material.

The Museum is an active educational instrument. Members of the scientific staff lecture in University Extension programmes and in the University departments. Public lectures are held and there is also an extensive programme of nature study for children. A children's centre, staffed by a Museum teacher provided by the Education Department, is open during school holidays. Children voluntarily participate in general knowledge tests and other exercises designed for vacation activities. Regular classes are held during school terms, and special visits are made by children from schools not included in the regular series.

The Museum Act specifically vests in the Museum six ships wrecked off the Western Australian coast in the 17th and 18th centuries. It also makes provision for the vesting of any other ship abandoned, wrecked or stranded before 1900 and lying in territorial waters of the State, if the Director is of the opinion that the wreck is of historical, scientific,

archaeological, educational or other special national or local interest. It is further provided that every meteorite situated on land vested in the Crown shall be the property of the Museum.

In connection with its work of education, research and conservation, the Museum is often called upon to act in an advisory capacity to Government departments. In particular, senior staff serve on committees formed for the purpose of protection of the environment and of native fauna. The Museum is assisted in certain fields by Honorary Museum Associates, some of whom serve on Advisory Committees.

Under the provisions of the *Aboriginal Heritage Act, 1972* the Museum is responsible for administering the work of the Aboriginal Cultural Material Committee. The Act requires that the Registrar of Aboriginal Sites, the principal executive officer of the Committee, shall be a member of the staff of the Museum. The main function of the Committee is to evaluate, record and preserve Aboriginal sites and specific traditional Aboriginal artefacts within Western Australia.

#### THE WESTERN AUSTRALIAN MUSEUM

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
Expenditure—					
Salaries and wages ....	\$ 159,318	184,820	225,059	353,109	507,117
Other ....	\$ 62,063	80,477	140,861	224,100	312,916
Total ....	\$ 221,381	265,297	365,920	577,209	820,033
Square feet of—					
Display area (a) ....	6,832	6,832	6,832	10,500	22,000
Storage area (a) ....	11,400	11,400	16,850	16,000	20,000
Total ....	18,232	18,232	23,682	26,500	42,000
Number of—					
Staff (a)—					
Full-time—					
Professional ....	11	11	21	33	32
Administrative and clerical ....	8	8	9	16	16
Other ....	29	31	35	44	50
Honorary ....	2	2	2	4	6
Total ....	50	52	67	97	104
Man-days spent on field work ....	741	901	501	2,084	2,408
Guide lectures to school parties ....	351	530	519	457	639
Children attending lectures ....	13,272	19,738	18,451	16,421	22,119
Children's Centre school vacation attendances ....	32,846	36,883	40,881	25,037	22,970
Total visitors' attendances (b) ....	143,377	124,416	141,998	232,734	296,691

(a) At 30 June.

(b) Including attendances of school children.

#### THE WESTERN AUSTRALIAN ART GALLERY

The Western Australian Art Gallery is under the control of a Board of five members appointed by the Governor under the provisions of the *Art Gallery Act, 1959-1968*.

The Gallery occupies part of a building shared with the Museum. The lower gallery is used mainly for lectures, art films and the display of interstate and overseas exhibitions. Works from the permanent collection are exhibited in the upper gallery, while the print room is used to house and exhibit the collection of prints and drawings. Both displays are changed regularly. Important pieces of sculpture are on permanent display in both galleries and in an exterior courtyard designed for this purpose. Aboriginal grave and tribal posts, carvings and paintings are on permanent display in the upper gallery.

At 30 June 1972 the area available for display was 9,000 square feet, and for storage 6,100 square feet.

The Gallery has extended its services throughout the metropolitan area and country districts. Branch gallery facilities exist at the Cultural Centre at Derby where an exhibition of paintings from the permanent collection is displayed and changed each year. Reproductions of paintings are circulated by means of its loan service to various public institutions, and touring exhibitions from the permanent collection are taken to country districts at regular intervals.

These activities are supplemented by publications of various kinds, which are distributed to schools and other institutions or direct to the public. Reproductions of some works in the collection are also available.

The Art Gallery operates a general information service which is widely used, and tours of the Gallery are conducted for organised groups of adults, students and school-children. Children's art classes, which are supervised by the Gallery's education officers, are held during school holidays.

Members of the professional staff are called upon to judge exhibitions, give public lectures, and sit on various planning and advisory committees.

#### THE WESTERN AUSTRALIAN ART GALLERY

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
<b>Expenditure—</b>					
Salaries and wages .....	\$ 50,195	50,715	68,564	88,201	98,875
Acquisition of exhibits .....	\$ 29,945	41,041	112,009	46,014	66,967
Special exhibitions .....	\$ 12,090	5,745	10,771	11,690	12,780
Printing .....	\$ 11,784	6,384	8,324	7,380	7,742
Other .....	\$ 18,639	23,029	23,951	21,537	27,929
<b>Total .....</b>	<b>\$ 122,653</b>	<b>126,914</b>	<b>223,619</b>	<b>174,822</b>	<b>214,293</b>
<b>Number of—</b>					
<b>Staff (a)—</b>					
<b>Full-time—</b>					
Professional .....	4	3	3	3	3
Administrative and clerical .....	4	4	5	5	5
Other .....	7	10	12	10	13
Honorary .....	4	5	5	3	3
<b>Total .....</b>	<b>19</b>	<b>22</b>	<b>25</b>	<b>21</b>	<b>24</b>
<b>Exhibits for display (a)—</b>					
Oil paintings .....	464	470	482	499	520
Water colour paintings .....	194	196	206	207	210
Drawings .....	422	426	438	453	460
Engravings, prints, woodcuts .....	1,148	1,176	1,300	1,354	1,407
Sculptures .....	51	56	57	67	67
Ceramics .....	405	427	427	430	443
Jewellery, medallions, coins .....	804	827	831	834	834
Other .....	210	234	265	272	345
<b>Total .....</b>	<b>3,698</b>	<b>3,812</b>	<b>4,006</b>	<b>4,116</b>	<b>4,286</b>
Special exhibitions .....	12	7	10	7	9
Visitors' attendances .....	109,242	126,786	121,718	118,059	130,317

(a) At 30 June.

#### STATE GOVERNMENT OBSERVATORY

The Perth Observatory was established in 1896, on the site now occupied by an administrative office building of the Western Australian Government, facing the main entrance to King's Park.

The buildings of the present Perth Observatory, near Bickley in the Darling Range, were officially opened on 30 September 1966.

The astronomical instruments at the Observatory are a photographic refractor of thirteen inches aperture, the Hamburg Observatory's seven-inch meridian transit telescope, and the Lowell twenty-four inch reflector. A sixteen-inch reflector, constructed by the Physics Department of the University of Western Australia, is also in operation at the Observatory site.

The photographic reflector is used for investigations of stellar motions based on measurements of old (1900-1920) and recent photographs; the recovery of minor planets which have been unobserved for several years; positional observations of the brighter comets and investigations of comet orbits; and securing photographs, to a faint magnitude limit, of significant areas of the southern sky, for future use in determinations of stellar motions.

From late in 1967 to the end of 1971, a team of astronomers from the Hamburg (West Germany) Observatory carried out a programme of observations of the positions

of fundamental stars in the southern hemisphere. Their fully-automated meridian transit telescope is to remain at Bickley for a few years and staff of the Perth Observatory are continuing with programmes in this field, which is basic to all work in positional astronomy.

The 24-inch reflecting telescope was installed at the beginning of April 1971. It is used for observations in the International Planetary Patrol Program, which is financed by the National Aeronautics and Space Administration of the United States of America and conducted by the Lowell Observatory, of Flagstaff, Arizona, U.S.A. This programme involves the photography, with identical cameras at six observatories, well distributed in longitude, of the planets Mars and Jupiter. Each planet is photographed, through four standard colour filters, systematically throughout the period during which it is available. The purpose of this programme is to study temporal variations in the atmospheres and surface features of these planets.

The United States Naval Observatory, at Washington, D.C., plans to bring to Bickley a twin eight-inch telescope, with which a series of photographs covering the entire southern sky are to be obtained simultaneously on blue and yellow-sensitive plates. This survey, which is the follow-up to that of the Hamburg Observatory, will result in the determination of precise positions and (through comparison with older catalogues) motions of about 200,000 southern hemisphere stars.

The Observatory maintains the time service for the State. It is open to visitors daily, except Saturdays, at 3 p.m. Night visits are arranged for groups with a specialised interest in astronomy.

## STATE GOVERNMENT CHEMICAL LABORATORIES

In 1922 the various chemical services of the State Government were amalgamated to form the Government Chemical Laboratories, primarily for the performance of chemical work required by Government departments. In addition, the Laboratories serve government instrumentalities and semi-government authorities and undertake some chemical work for the general public. The activities of the Laboratories are organised under seven Divisions, the separate functions of which are described briefly in the following summary.

The *Agriculture Division* does analytical work, on soils, for basic research, the effect of fertilisers, cultivation methods and crop rotation; on plants, as fodders for livestock and also to assess the nutritional requirements of plants with particular reference to the use of fertilisers and the correction of trace element deficiencies; on fertilisers and manures generally; and on animal tissues for diagnostic purposes.

The *Engineering Chemistry Division* is concerned mainly with research into the utilisation of the State's natural resources, particularly fuel and mineral resources. Investigations are carried out on specific technological problems at the request of Government, industry, or individual sponsors, or are initiated from within the Division. Facilities are available for physical and chemical testing of coals and other fuels and for experimental work on most aspects of fuel utilisation, ore dressing, chemical engineering and metallurgical processing.

The *Food, Drugs, Toxicology and Industrial Hygiene Division* deals with the analysis of foods, including milk; drugs; police work, including human and animal toxicological examinations for poisons and analysis of blood and urine for alcohol concentration; industrial hygiene, including determinations relating to the amount of potentially harmful substances present in industrial and commercial materials or associated with working conditions; and industrial effluents and pollution surveys of river and ocean waters.

The *Industrial Chemistry Division* provides, for Government, industry and the public generally, a source of technical information and advice on matters relating to industry and its products. It also advises on the potential of new methods or improvements in existing processes, and undertakes related experimental investigations.

The *Kalgoorlie Metallurgical Laboratory* carries out research in mineral beneficiation and ore treatment for mining companies and prospectors. Assays and mineral analyses are done in the course of this work and also on separate samples.

The *Mineralogy, Mineral Technology and Geochemistry Division* is basically concerned with minerals, their occurrence and identification, but it also carries out the testing of clays and of aggregates for cement and concrete work, as well as corrosion and other tests. Analyses are done for the Geological Survey Branch of the Department of Mines in connection with mineral surveys, notably those for copper and iron. This Division is also the reference laboratory for analyses of crushings of gold ores by the State Batteries. An important part of its work is the identification of mineral specimens forwarded by prospectors and others and the Division deals with many hundreds of such samples every year.

The *Water Division* analyses waters from all parts of the State for Government and the public and makes recommendations on their suitability for specific purposes. Most of the work is done on behalf of the Metropolitan Water Supply, Sewerage, and Drainage Board and the Public Works Department, to ensure that water supplies under their control comply with the accepted standards of water for human consumption. The Division also investigates problems associated with water distribution and industrial use, including cooling and heating waters and liquid wastes where corrosion, scaling or pollution are involved.

Details of the operations of the Government Chemical Laboratories are published in the Annual Report of the Director.

#### THE INSTITUTE OF AGRICULTURE, UNIVERSITY OF WESTERN AUSTRALIA

The Institute of Agriculture was established in 1938 within the University to provide research facilities and staff essential for the effective training of professional agricultural scientists at both undergraduate and graduate levels. It includes the teaching and examining Faculty of Agriculture, and the research staff associated with it. Although the Institute is financed to some extent from University funds, substantial research grants from producer organisations and other bodies and individuals interested in the promotion of agriculture have made possible most of the research that has been undertaken since its establishment.

During the first ten years of its existence, and despite the dislocation of the war years, it initiated research on plant and animal problems of the pastoral areas, commenced a series of fundamental studies related to the nutrition of ruminants, investigated factors affecting the baking quality and nutritive value of wheat and flour, elucidated factors affecting the fertility of sheep, and carried out a series of economic surveys of the sheep, wheat, dairying, pig, and poultry industries. The work of these years is summarised in the report of the Director, published in 1949.

Since 1948 the research programmes have been greatly increased and their scope widened. Plant breeding, selection and genetical research aimed at increasing the productivity and extending the climatic limits of crops and pasture legumes, especially subterranean clovers, medics and lupins, was strongly developed and fundamental studies initiated on the nutritional physiology and microbiology of the wool sheep with particular reference to the factors influencing the utilisation of protein, of urea and of low-quality roughages. The agronomic research has been expanded to include cereal genetics studies, and the animal research to include nutritional studies with beef cattle. In recent years studies in mineral metabolism, especially sulphur, phosphorus, cobalt and zinc, have been initiated.

More detailed economic surveys of the wheat-sheep farming industry and of the butterfat producing and whole-milk producing industries have been carried out, together with studies of the comparative advantages of forestry and agriculture in parts of the south-west of Western Australia, and studies of egg-marketing problems. In 1961 the John Thomson Agricultural Economics Centre was set up within the Institute with funds supplied by banks, business houses and other organisations. The research economists of this Centre have completed an economic appraisal of irrigation from the Gascoyne River, an inter-industry comparison of the economy of Western Australia, and an investigation of farm population and land development potential in Western Australia. In 1967 a Farm Management Service Laboratory was set up as a service to farmers.

In 1963 a Department of Soil Science and Plant Nutrition was established within the Institute with a very strong research group engaged in studies of soil physics, soil chemistry, soil microbiology and plant nutrition. The soil microbiology workers are mainly concerned with a continuation of earlier research into nodulation problems in legumes and the nitrogen-fixing process. The plant nutrition group has devoted particular attention to the uptake by crop and pasture plants of mineral nutrients, especially potassium, phosphorus, copper, zinc and manganese. The soil chemistry workers are specially concerned with the chemistry of soil organic matter and micronutrient cations, and the soil physics group with the role of the clay minerals in soil, with soil water, and the movement and retention of soil phosphorus and sulphur.

In 1966 a Department of Agronomy was established within the Institute. The research activities of the staff of this Department include the work in plant breeding mentioned previously and have been expanded to cover investigations into plant-water relations and agricultural climatology. A Department of Agricultural Economics and a Department of Animal Science and Production were established within the Institute early in 1971.

This brief review of the very wide range of the research activities of the Institute of Agriculture, at both the fundamental and at the more applied level, illustrates the extent to which it contributes to the assistance and service of the rural industries, indirectly by its training of agricultural scientists and directly through its manifold research projects.

### COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANIZATION

Several Divisions of the Commonwealth Scientific and Industrial Research Organization (CSIRO) have laboratories in Western Australia. While most of the research is relevant to agriculture and industry in this State, much of it is also applicable to other areas, since the work of the Organization is directed towards problems occurring in more than one State.

**Division of Soils.** The Division of Soils has in the past been concerned with soil-distribution studies in areas representative of the main types of agricultural land usage in Western Australia. Regional studies to build up a picture of the soil pattern of the whole State have also been made, and have been published as part of the *Atlas of Australian Soils*. More recently, field studies have been aimed at a better understanding of the whole soil environment as a basis for the investigation of specific problems. One such project involves the way in which the natural balance has been upset by agricultural development involving the replacement of deep-rooted, perennial shrubs and trees by shallow-rooted, annual crops and pastures. This change has frequently resulted in increased salinity of both soils and waters, and is of particular consequence where it affects catchments of reservoirs storing water for urban, industrial or agricultural purposes.

The Division is also concerned with the nutrition of a wide variety of crops, including cereals, pastures and forest trees. Yield responses of wheat to fertiliser treatments, over a wide range of soils and climatic conditions throughout the agricultural areas, are being investigated. The fertiliser requirements of annual pastures in higher-rainfall areas, and of exotic pines on both the lateritic soils of the Darling Range and the infertile sands of the Swan Coastal Plain, are also being investigated. Chemical analyses of the large number of both soil and plant samples, which are an essential part of these studies, have been facilitated by the development of automated laboratory facilities at the Western Australian Laboratories.

**Division of Plant Industry.** Research in the Division of Plant Industry is concerned with obtaining a better understanding of the processes involved in pasture and crop production in Mediterranean environments so that more efficient systems of farming can be devised. It is becoming increasingly concerned with the broader problems of management of rural land resources of water, soils and plants.

The environmental limitations to production of a variety of crop plants and to pastures is being studied in the high rainfall areas of the South-West. Also, limitations in animal production due to nutrient deficiencies, or imbalances, and to toxicities in both pastures and crop residues are being examined.

In pastoral agronomy the conversion of plant material into animal products is being studied with the aim of increasing the efficiency of animal production. In ley agronomy, problems of crop production are being studied in addition, and relative to, the pastoral agronomy aim of increasing animal production. Research in both pastoral agronomy and ley agronomy is orientated towards the better understanding of all the factors involved in pasture, crop and animal production and of their relative importance in agricultural systems. Mathematical models of the biology, chemistry and physics of parts of agricultural systems are being developed to integrate existing knowledge in order to devise better farm management strategies or to locate areas requiring further research.

Recently, more work has begun on the water use by different types of vegetation and its effects on water yield. This is being coupled with studies of land use management in relation to water yield from catchments.

A special feature of the Division's programme in Western Australia is the research on the deep sands of the Swan Coastal Plain. At present much of this area of some 3 million acres has a low level of agricultural production, but there are large volumes of underground water available and a programme of irrigation research has been undertaken. Initial results with both crops and pastures indicate a very high potential productivity. Emphasis is now being given, however, in both dryland and irrigation research, to crop production.

**Division of Entomology.** Biological control of two serious pasture pests, the red-legged earth mite and the lucerne flea, is the aim of a long-term study of the ecology and population dynamics of these pests which was commenced in 1952. The work has led to an understanding of the process involved in regulating numbers and has revealed the likely occurrence of agents for biological control. Two useful predatory mites were discovered in Europe and North Africa, and these are both now established in Western Australia (and also in South Africa). Detailed taxonomic studies of the families Bdellidae and Anystidae, to which these mites belong, as well as the host family Sminthuridae, have been necessary and these are in progress.

Jarrah is a most important source of timber in Western Australia. The foliage of this tree is attacked by the jarrah leaf miner, the larva of a small moth. The extent and intensity of this infestation seems to have increased in recent years, and in 1967 a detailed ecological study was commenced. Special attention is being paid to the possible effects on the environment of various silvicultural methods, including controlled burning and its influence on the natural control of the leaf miner by parasites and predators.

A programme of research into the pest insects of pome fruit orchards was started in 1968. The programme is designed to gather data for comparison with results obtained in eastern Australian orchards, and to provide a detailed understanding of the life system of San Jose scale. In unsprayed orchards San Jose scale is kept at a low level of abundance by a series of parasites and predators, and under such conditions does not damage trees.

In 1969-70 a large-scale field test of a granulosis virus of potato tuber moth was carried out in the lower south-west. The test was successful and the study has been expanded to give data relating to the epidemiology of the virus, the ecology of potato tuber moth, and the role and status of other pests of potatoes. In the test area the virus has become well established and flares up from time to time, depending on the density of potato tuber moth larvae and population stresses.

**Division of Mathematical Statistics.** Officers of the Division of Mathematical Statistics are concerned with the application of statistical methods to special problems of local interest in the fields of the applied and biological sciences. In addition, they act in an advisory capacity to other research workers in the State on matters relating to the design of experiments and the analysis and interpretation of data.

**Division of Computing Research.** The Division of Computing Research provides a computing service for research workers in other Divisions. Computing equipment installed includes key punch machines and a remote Batch computer terminal.

**Division of Mineralogy.** The Division of Mineralogy is concerned mainly with research having a bearing on the mineral industry. The main theme of the laboratory work of the Division is concerned with the elucidation of the chemical and physical nature of the geological processes of mineral formation and alteration. This work is directed towards helping to meet the special challenge of mineral exploration in inland areas, where rock outcrop is scarce and so much of the geology is obscured by the ubiquitous soil cover. Studies are in progress on processes of ore genesis, on the haloes of alteration around ore bodies and on possible methods of recognising indicators of ore bodies that can survive the process of weathering.

The laboratory, in addition, is acting as a link between manufacturing industry in Western Australia and physical, chemical and metallurgical divisions of the Commonwealth Scientific and Industrial Research Organization.

**Division of Wildlife Research.** The Division of Wildlife Research, located at Helena Valley, is concerned with investigations on the higher vertebrates (more particularly mammals and birds) and these cover not only species of economic importance but the native fauna generally. The Division played a part, in association with the Department of Agriculture, in the control of rabbits by the introduction of the disease myxomatosis, and carried out a basic research project on the control of the Euro (a species of kangaroo) in the Pilbara district.

Among birds, studies of the ecology of the Emu, the Wedge-tailed Eagle in the pastoral zone, the White-tailed Black Cockatoo, the Noisy Scrub-bird, and the Galah are proceeding. Other current projects include experimental and field studies on the factors controlling breeding seasons of birds under Western Australian conditions.

**Division of Fisheries and Oceanography.** The Division of Fisheries and Oceanography has a research group studying population ecology, physiology and behaviour of the western rock lobster. This is a joint project shared with the Western Australian Department of Fisheries and Fauna. The project is being expanded from 1973 with the charter of a vessel enabling more detailed studies of rock lobster larvae to be undertaken, as well as basic research upon water circulation on and adjacent to the continental shelf on the western coast of Australia.

**Division of Food Research.** The Meat Research Laboratory of the Division of Food Research has an extension officer located in the laboratories of the Western Australian Department of Agriculture at South Perth. The officer is a member of the Meat Laboratory's Industry Section. This Section is responsible for service, investigation, liaison and extension work in meat works and meat processing establishments, to ensure that the results of investigations made by the Commonwealth Scientific and Industrial Research Organization are known and applied. The officer located in Perth services processing plants in Western Australia and the Northern Territory. He is available to give a limited extension liaison service to other food processing industries.

**Division of Animal Health.** The Melbourne Laboratory of the Division of Animal Health is concerned mainly with research into diseases of farm animals. A Branch of the Laboratory has been set up in the Institute of Agriculture at the University of Western Australia to investigate reproductive losses in sheep in Western Australia, with particular reference to pathological aspects of clover disease and possible infectious causes of infertility.

**Division of Land Research.** The Kimberley Research Station in the far north of Western Australia is operated jointly by the Commonwealth Scientific and Industrial Research Organization and the Western Australian Department of Agriculture. Its function is to undertake research into the production of tropical irrigated crops suitable for use on the farms of the Ord River irrigation project.

Cotton is currently the chief commercial crop grown in the area and research is concentrated on cotton breeding emphasising hybridisation, insect control and cotton agronomy for improvement in quality. With the aim of diversifying production, research on

other crops and irrigated pastures has recently been intensified. Sorghum research has been concentrated on variety selection and the development of suitable related agronomic practices. The oilseed crops of safflower and soya bean-sesame have been tested as dry and wet season crops, respectively. During dry winter months the temperate crops of wheat, barley, oats and maize have also been grown successfully.

The production of rice and culinary peanuts is proceeding. Investigations into the agronomy of irrigated forages are associated with dry-lot feeding trials and diet supplementation trials for cattle raised in a range situation.

**Division of Applied Geomechanics.** With the increase in the number and size of buildings constructed in the central area of Perth, the problems of foundation design have been accentuated. At the invitation of the Western Australia group of the Australian Geomechanics Society, the Division is carrying out a geotechnical survey of the occurrence and foundation characteristics of the soils of the Perth metropolitan area and co-ordinating the presentation of relevant data.

All available bore-hole data for the city centre area have been gathered, collated and published in a report. It is planned that this survey will be extended to cover the whole area of metropolitan Perth.

Many of the new buildings in Perth are, or will be, founded on reinforced concrete rafts. Due to the soil conditions and the uncertain effects of earthquake shocks on foundations, adequate design data are often not available. The Division has therefore undertaken a project to provide data on the performance of the rafts for four large buildings in the city area, the Australian Mutual Provident Society building, the Reserve Bank building and the St Martin's City Centre. Measurements are being made of the contact stresses at the soil-raft interface, pore water pressures, total settlement and deflected shape of the rafts, vertical and lateral soil movement, column loads imposed on the rafts and the stresses and strains within the rafts.

## DEPARTMENT OF AGRICULTURE

Reference to the scientific work of the Department of Agriculture appears in the section *The Department of Agriculture* in Chapter VIII, Part 1—*Primary Production*, and also in Chapter VII, Parts 1 and 2.

## BOTANIC GARDEN

The Botanic Garden was established in The King's Park in 1962 and is under the control of the King's Park Board (see following section *Public Parks and Reserves*). The Botanic Garden is the counterpart of The Western Australian Museum in the botanical field and complements the State Herbarium by maintaining collections of living plants for scientific and educational purposes. Its official objects are to foster public interest in the conservation and cultivation of the Western Australian flora; to contribute to public education in this field; to become a centre for botanical and horticultural research in the flora of Western Australia; and to provide a major tourist attraction.

The Garden, which was officially opened in October 1965, extends over eighty-four acres, made up of the Western Australian collection (forty-two acres), Californian, South African and Mediterranean collections (seven acres), and an arboretum of native trees (thirty-five acres). The indigenous flora of the State is represented in the Western Australian collection by approximately 1,200 species. Trees grown as specimens in the arboretum are mainly those which are native to the southern half of the State.

Parties from the Botanic Garden are regularly in the field for the collection of propagating material. Special attention is devoted to the preservation of rare species or species threatened with extinction. Seed of native plants collected is distributed from surplus stocks to botanical institutions throughout the world and sold to private growers and to nurserymen. A seed list, which normally offers from 1,000 to 1,300 species, is published annually, and more than 10,000 packets of seed are distributed each year.

Experimental work in propagation of native plants is carried out and a Wildflower Exhibition is held in the Park each spring. Lectures are given by members of the staff to interested societies and to students engaged in related courses of study. The public may also, by arrangement, consult members of the staff. Facilities are provided for the employment and training of students enrolled in the three-year course for the Certificate of Horticulture, which is conducted by the Technical Education Division of the Education Department.

## PUBLIC PARKS AND RESERVES

It is within the power of the Governor to dispose of, in any manner which serves the public interest, lands which are vested in the Crown and, in terms of this authority, Crown land is frequently reserved by order of the Governor for a variety of public purposes. Some of this land is reserved for public recreation and amusement, national and other public parks, or flora and fauna sanctuaries and the reserves are controlled by statutory bodies, the more important of which are dealt with in this section.

The *National Parks Board of Western Australia* controlled thirty-five National Parks and a number of other reserves at 30 June 1972, totalling in all about 3.6 million acres in area. Flora and fauna are protected and firearms prohibited in all National Parks and Reserves controlled by the Board. Picnic, recreational, camping and caravan facilities are available in certain parks and reserves.

NATIONAL PARKS BOARD OF WESTERN AUSTRALIA  
PARKS AND RESERVES VESTED IN THE BOARD AT 30 JUNE 1972

National Park or Reserve	Area	National Park or Reserve	Area
	acres		acres
Alexander Morrison .....	21,014	Neerabup .....	2,785
Araluen-Canning Dam Reserve .....	50	Penguin Island Reserve .....	31
Avon Valley .....	10,754	Porongurup .....	5,532
Cape Arid .....	642,000	Serpentine .....	1,571
Cape Le Grand .....	54,876	Sir James Mitchell .....	2,702
Cape Range .....	33,171	Stirling Range .....	285,874
Cave Reserve .....	1,050	Tammin Flora Reserve .....	1,441
Chichester Range .....	372,163	Tathra .....	10,761
East Perth Cemetery Reserve .....	12	Torndirrup .....	8,905
Frank Hann .....	64,480	Walpole Flora Reserve .....	228
Geikie Gorge .....	7,750	Walpole-Nornalup .....	33,007
Gooseberry Hill .....	81	Walyunga .....	4,320
Greenmount .....	127	Watheroo .....	77,246
Haddleton Flora Reserve .....	406	William Bay .....	4,644
Hamelin Bay Reserve .....	2,063	Windjana Gorge .....	5,273
Hamersley Range .....	1,458,430	Wolf Creek Meteorite Crater Reserve .....	3,607
John Forrest .....	3,903	Yalgorup .....	22,480
Kalamunda .....	919	Yallingup Reserves .....	4,659
Kalbarri .....	377,045	Yanchep .....	6,894
Lesmurdie Falls .....	86	Yanchep Flora Reserves .....	439
Matilda Bay Reserve .....	57	National Park—Cowaramup Bay (a) .....	1,884
Moore River .....	26,030	National Park—Drover's Cave (a) .....	6,624
Nambung .....	42,835	National Park near Porongurup .....	
Nowergup Lake Fauna Sanctuary .....	288	Range (a) .....	150
		National Park near Stirling Range (a) .....	3,161
Total area of National Parks and Reserves (b) .....			3,613,808

(a) Not officially named at 31 December 1972.

(b) Excludes a number of small reserves, totalling 55 acres, not listed above

The *Emu Point (Albany) Reserve Board* controls a reserve containing an area of approximately 1,114 acres at Emu Point near Albany, which has been developed for recreation, camping and residential purposes. A hostel, two camping and caravan parks and a motel

provide accommodation. Pen facilities are available for small boats and mooring areas are provided for professional fishing boats.

The *King's Park Board* administers an area of almost 1,000 acres close to the centre of Perth. Part of this area was dedicated in 1872 'for the purpose of a public park and recreation ground' and was enlarged in 1890. Beautification commenced in 1896 under the presidency of Sir John Forrest, and the name was changed in 1901 from Perth Park to The King's Park in honour of the accession of King Edward VII. In addition to its original function as park and recreation ground, The King's Park has over the years gradually developed two other important functions, as a National Shrine and as a Botanical Reserve. In the former case it houses the State's most important monuments and commemorative features of a military and historical nature. A memorial to the South African war was built in 1901, and the State War Memorial to the fallen of both world wars was erected on a commanding position on Mount Eliza in 1929 and extended in 1952. 'Honour Avenues' of trees dedicated to individual fallen servicemen were planted in 1919 and later, and another avenue commemorates the State Centenary of 1929. There are smaller memorials erected by individual regiments or other military units, and a number of monuments to important historical personages.

The concept of the botanical reserve grew from the fact that four-fifths of the Park's area remained undeveloped under a natural bushland which contained many native wildflowers. Increasing urbanisation and the loss of natural sites in and close to Perth made the retention of this bushland area a matter of scientific and aesthetic value. This function was strengthened from 1962 onwards by the establishment in the Park of a botanic garden and arboretum of eighty-four acres for the cultivation and display of Western Australian native plants. (See preceding section *Botanic Garden*.)

Recent developments have continued to contribute to the Park's aesthetic and recreational functions. Facilities exist for playing tennis, bowls and hockey. A fully-equipped modern restaurant was erected in 1956, close to such features as a floral clock, a wishing well, a giant karri log and an observation platform. There are several public barbecue sites and many miles of pedestrian paths and tracks. The original fifty acres of lawns and shrubberies have been materially extended by the Botanic Garden development. Four new lawns have been added within the Garden, one of which encircles a landscaped water garden with four pools, two cascades and a waterfall, one pool featuring an illuminated fountain dedicated to the pioneer women of the State. A picnic lawn and children's nature playground have been established around an artificial lake at the western end of the park and linked to older-developed areas by a mile-long vista leading to a viewing tower.

The *Zoological Gardens Board* administers the Zoological Gardens at South Perth, an area of forty-four acres of animal enclosures, cages, lawns and gardens. The Zoological Gardens were established in October 1898 for the collection and display of mammals, birds, reptiles and fish from all parts of the world, but specialising in Australian, and particularly Western Australian, fauna. The Zoo is open to the public every day of the year. During the year ended 30 June 1972, 79 species of mammals, 270 species of birds and 39 species of reptiles were exhibited. In this period 366,241 people paid for admission and, in addition, 3,297 disadvantaged children and adults were admitted free.

The *Rottneest Island Board* administers as a tourist and holiday resort a reserve comprising almost the whole of Rottneest Island, which is situated about eleven miles west of Fremantle. The settlement at Thompsons Bay contains 120 cottages and bungalows to let, a hotel, lodge, camping area and all services. Recreational facilities include a golf course, tennis courts, bowling green and a riding school. The coastline is ringed by a road system with access to the various swimming and fishing areas. There is a land-backed wharf and three jetties in Thompsons Bay and jetties at Geordie Bay and Green Island. Special features of the island include the marsupial known as the Quokka and the Rottneest Island Daisy. The island is served regularly by air and sea transport.

*Caves Reserves.* Extensive limestone caves have been discovered at several places in the south-west part of the State. Some of them, between Cape Naturaliste and Cape Leeuwin and at Yanchep, have been developed for public inspection and certain areas

of the surrounding land have been reserved, notably at Yanchep, Yallingup, Margaret River and Augusta.

*Local Government Reserves.* Many local authorities hold land for recreational purposes, the areas having been either Crown land vested in the Council, acquired by way of purchase, or received under private bequest. Included in these local government reserves are areas required to be surrendered to the Crown by private owners, when subdividing land into residential lots in order to provide recreation areas for the holders of lots in the subdivision. The reserves are frequently developed as public parks or to provide facilities for sports or camping.

*The State National Fitness Council* controls reserves, used principally as camp sites by youth and sporting groups, at Point Peron on the coast south of Fremantle, at Sorrento (under development) to the north, at Bickley in the Darling Range, and at Guildford about seven miles north-east of Perth.

*Chapter V—continued*

**Part 3—Health Services, Hospitals, and Care  
of the Aged and Disabled**

**HEALTH SERVICES**

The Commonwealth and State Government health authorities, together with Boards of Health under local government administration, co-operate in maintaining health services and in the prevention and control of infectious diseases in Western Australia.

**Commonwealth Government Services**

The Department of Health is administered, subject to the Minister, by a Director-General of Health. In each State there is a Director of Health responsible to the Director-General. Among the principal functions of the Department are the management of the National Health Services provided under the National Health Act and the administration of the Quarantine Act.

**National Health Services.** National Health Services financed from the National Welfare Fund, to which reference is made on page 232, include hospital and nursing home benefits; medical benefits; pharmaceutical benefits; handicapped children's benefits; the free supply of milk for school children; and the payment of tuberculosis allowances and other forms of assistance in tuberculosis control. (For rates and conditions applying to payment of these benefits see letterpress *National Health Services* on pages 241-6.) Additional expenditure from the National Welfare Fund in relation to health services includes the cost of district health laboratory services, the free supply of certain prophylactic materials and biological products (e.g. poliomyelitis vaccine), the supply and maintenance of hearing aids for persons aged up to twenty-one years and for eligible pensioners and their dependants, subsidies to various voluntary organisations conducting home-nursing services that are assisted by the State Governments or local government authorities, the supply of artificially produced radio-active isotopes to private medical practitioners and hospitals for medical treatment purposes, and expenses in connection with the blood fractionation plant of the Commonwealth Serum Laboratories.

**Quarantine.** The *Quarantine Act* 1908-1969 provides for the quarantine of humans, animals and plants. Human quarantine is concerned primarily with the procedures necessary to exclude quarantinable diseases, namely smallpox, plague, cholera, yellow fever, typhus fever, leprosy, and such other diseases as may be declared under the Quarantine Act. Animal quarantine regulates the importation of animals and animal products from overseas, and plant quarantine the importation of all plants and plant products, with the object of excluding plant diseases, insect pests and weeds. In respect of interstate movements of animals and plants, the Quarantine Act becomes operative only when it is considered that Commonwealth action is necessary for the protection of any State or States, and in general the control of interstate movements of animals and plants is the responsibility of State Governments.

**State Government Services**

The principal Statute relating to the provision and regulation of health services in Western Australia is the *Health Act, 1911-1970*, which is administered, subject to the control of the Minister, by a Commissioner of Public Health. The Act is comprehensive in scope and confers on the Commissioner the powers necessary for the prevention and control of infectious diseases; the enforcement of sanitation, building and pure foods

standards; the control of nuisances and offensive trades; the regulation of the sale of pesticides and the manufacture of therapeutic substances; and the registration of private hospitals and the licensing of maternity homes. Other Acts under Public Health administration are the Anatomy Act, the Clean Air Act, the Cremation Act, the Poisons Act and the Radioactive Substances Act.

The Public Health Department maintains a health laboratory service which provides diagnostic medical laboratory services for a major metropolitan general hospital (Sir Charles Gairdner Hospital), for all those areas of Western Australia not otherwise served by medical laboratories, for government and charitable institutions and for pensioners. A public health epidemiological service is also provided for the State; nutritional, health and other surveys are undertaken; and forensic laboratory work is done for the Police Department and the Crown Law Department. A new central laboratory building is under construction at the Perth Medical Centre being established at Hollywood under the provisions of the *Perth Medical Centre Act, 1966*.

The Health Education Council is established as a statutory body under the provisions of the *Health Education Council Act, 1958-1961*. The Council conducts publicity campaigns and public lectures on matters affecting public health, including home accidents, handling of poisons, poliomyelitis and diphtheria immunisation and the control of flies and mosquitoes.

The Cancer Council of Western Australia is constituted under the provisions of the *Cancer Council of Western Australia Act, 1958-1964* as a statutory body with the functions of co-ordinating, promoting and subsidising research into the cause, diagnosis, prevention and treatment of cancer.

### Infectious Diseases

The *Health Act, 1911-1970* provides for the compulsory notification of infectious diseases and for the application of preventive measures. For the purposes of the Act, infectious diseases are those which are specified in the Act, as well as any other diseases which may, from time to time, be declared. The occupier of premises where such a disease occurs is required to notify the local authority forthwith. The medical practitioner who attends a person suffering from an infectious disease must, on the day on which he becomes aware of the nature of the disease, notify the occupier and also the local authority and the Commissioner of Public Health.

On the appearance of any epidemic, endemic or contagious disease, the local authority is required to notify the Commissioner immediately and to report periodically on the disease. The Act provides for the disinfection and cleansing of premises and for the disinfection and destruction of bedding, clothing or other articles which have been exposed to infection. The Commissioner may require any person suspected to be suffering from, or to be a carrier of, an infectious disease to submit to medical examination.

NOTIFIABLE DISEASES (a)—NUMBER OF CASES NOTIFIED (b)

Disease	1967	1968	1969	1970	1971
Brucellosis ....	2	1	2	2	1
Diphtheria ....	1	1	1	2	1
Infectious hepatitis ....	190	147	146	166	291
Leprosy (c) ....	12	26	39	28	25
Leptospirosis ....	2	1	1	1	1
Paratyphoid fever ....	1	1	1	1	1
Poliomyelitis ....	1	2	1	1	1
Tetanus ....	1	2	1	1	4
Tuberculosis ....	171	178	187	178	123
Typhoid fever ....	1	2	3	1	1
Typhus (all forms) ....	2	1	1	1	1

(a) See letterpress immediately preceding table. (b) Figures exclude cases where the original diagnosis was subsequently disproved. No cases of cholera, plague, smallpox or yellow fever were notified during the period. (c) Aborigines account for practically all of these cases.

The previous table shows, for Western Australia, the number of cases notified during the years 1967 to 1971 for those diseases notifiable in all, or nearly all, States and Territories

of Australia. In May 1965 the National Health and Medical Research Council at its Fifty-ninth Session proposed a basic list of diseases to be notifiable in each State and Territory and this table is based upon that proposal. The table does not include all diseases which are notifiable in Western Australia.

Leprosy and trachoma are endemic among the Aborigines of the Kimberley Division in the far north of the State, and cases are, with few exceptions, confined to the Aboriginal population. The Department of Public Health and the Northern Territory Medical Service co-operate in the control of these diseases.

The Commissioner of Public Health may compel any person believed to be suffering from venereal disease to undergo examination by a medical practitioner. Any person who is aware or suspects that he is suffering from venereal disease is required to consult a medical practitioner and, if found to be infected, must continue treatment until a certificate of cure is issued. Free treatment is available at public hospitals. In 1971, 1,236 cases of gonorrhoea and 254 of syphilis were notified to the Department.

A joint campaign of tuberculosis control is conducted by the Commonwealth and State Governments. Under the provisions of the *Tuberculosis Act 1948*, the Commonwealth reimburses the State for capital expenditure incurred after 1 July 1948, and for net maintenance expenditure in excess of that of the base year 1947-48. In addition, the Commonwealth Government pays allowances to tuberculosis sufferers and their dependants, as set out in Part 5 of this Chapter. Western Australia, like the other States, carries out the actual work of diagnosis and treatment. Under the *Health Act, 1911-1970* (State), all persons in Western Australia may be required to undergo X-ray examinations, which are conducted by mobile units of the Tuberculosis Control Branch and at its Perth and Fremantle Chest Clinics.

### Special Health Services for Children

In addition to measures provided for immunisation against poliomyelitis, diphtheria and other infectious diseases, Child Health Services and School Medical and Dental Services assist in maintaining the general health of children in Western Australia.

CHILD HEALTH SERVICES

Particulars	1967	1968	1969	1970	1971
Expenditure (a)—					
Salaries and wages .... \$'000	260	275	305	344	501
Other .... \$'000	59	60	63	73	94
Total .... \$'000	319	335	368	417	595
Number of—					
Staff (b)—					
Medical officers ....	2	2	2	2	1
Nurses ....	84	85	84	84	83
Total ....	86	87	86	86	84
Child health centres (b) ....	67	72	76	78	84
Mobile clinics (b) ....	4	4	3	4	4
Total ....	71	76	79	82	88
Attendances at centres—					
Individual infants ....	33,907	36,773	38,407	40,020	41,927
Total attendances ....	240,513	256,129	256,304	273,368	276,056
Infants examined at pre-school centres ....	5,414	6,235	6,491	7,386	(c)
Home visits by nurses ....	26,400	27,210	27,778	31,375	31,697

(a) Year ended 30 June.

(b) At 31 December.

(c) Not available.

Child Health Centres have been established throughout the State to advise mothers concerning the care of infants. Expectant mothers are also assisted in this way and country mothers who are unable to attend a Centre may receive advice by letter under a Correspondence Nursing Scheme. It is estimated that three out of every four infants in the State are taken to a Centre at least once in the first year of life. Child Health

Sisters also visit remote areas of the State and interview mothers who are normally dependent on advice given by correspondence.

The School Medical Services provide for the examination of each child twice during his school life. In addition, a teacher who at any time observes symptoms of illness in a child may refer the matter for attention by a medical practitioner. Parents are notified of physical defects found during medical examinations and, where home supervision is needed, are advised of the action required. Dental defects, ear, nose and throat affections and defective vision are the conditions most frequently reported.

The Dental Health Service operates mainly in country areas where private practitioner dental services are not available. Dental examinations of primary school children are conducted in conjunction with the Child Health Service. Parents are advised of dental disease requiring treatment. The cost of work done as a consequence by private dentists may in some cases be subsidised from government funds.

### Royal Flying Doctor Service of Australia

The Royal Flying Doctor Service of Australia is a non-profit organisation financed by grants from the Commonwealth and State Governments and by private donations. The principal function of the Service is to provide aerial medical services for residents in remote areas. Isolated townships, mining centres and sheep and cattle stations are usually equipped with two-way radio sets and, by this means, are linked with bases where doctors are available for radio consultation in the event of sickness or accident. In serious cases a doctor flies to the patient, who may then be flown to hospital for treatment. The Service provides, through the Commonwealth Department of Health, standard medical chests with directions for the use of the drugs and medical supplies which they contain.

The radio network of the Royal Flying Doctor Service is regularly used in the work of Schools of the Air conducted by the Education Department, and also for the transmission and receipt of telegrams. In addition, it may be used, as the need arises, in connection with flood relief, in searching for lost parties and in co-ordinating movements of livestock.

The following table shows particulars concerning the operations of the Western Australian Section of the Service during the five years ended June 1972.

ROYAL FLYING DOCTOR SERVICE OF AUSTRALIA  
OPERATIONS OF WESTERN AUSTRALIAN SECTION

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
Expenditure .... \$'000	154	178	245	*283	351
Number of—					
Medical flights ....	749	841	1,041	1,161	1,193
Miles flown ....	315,083	423,065	516,690	602,702	648,523
Patients transported ....	776	946	1,412	1,717	1,749
Patients attended ....	6,131	5,124	6,558	9,345	(a) 17,781
Radio and telephone consultations	1,589	2,201	2,520	2,547	2,082

(a) Not comparable with figures shown for earlier years due to inclusion of some services (e.g. immunisation) previously excluded. \*Revised.

## HOSPITALS OTHER THAN MENTAL HOSPITALS

### Commonwealth Government Hospitals

The Repatriation General Hospital at Hollywood and the Edward Millen Hospital at Victoria Park provide free medical treatment for ex-servicemen and ex-servicewomen in respect of disabilities which have been accepted as due to war service. With certain exceptions, ex-servicemen or ex-servicewomen who are totally and permanently incapacitated as a result of war service, or who receive war pensions at the intermediate rate, or at the maximum general rate (see letterpress *War Pensions* on page 239) and service pensioners are entitled also to free treatment for disabilities not caused by war service. Widows and children of deceased ex-servicemen whose deaths are accepted as due to war

service may also receive free treatment. If the deceased serviceman was unmarried, his widowed mother may receive free treatment if widowed prior to his death or within three years after his death.

### State Government and Government-assisted Hospitals

The *Hospitals Act, 1927-1972* is administered, subject to the direction of the Minister for Health, by the Medical Department. For administrative purposes, a hospital under the direct control of the Medical Department is classified as 'departmental' and is financed from State funds. A hospital classified as a 'Board' hospital has its own board of management and is subsidised by the State Government.

The principal government and government-assisted hospitals are the Royal Perth Hospital, Fremantle Hospital, Sir Charles Gairdner Hospital, King Edward Memorial Hospital for Women, Princess Margaret Hospital for Children, the Home of Peace for the Chronic Sick, the Perth Dental Hospital, and Mount Henry Infirmary and Sunset Infirmary for geriatric patients.

Departmental and Board hospitals collect fees from patients able to pay for treatment, and receive Commonwealth hospital benefit payments provided under Part V of the *National Health Act 1953-1971* (see letterpress *Hospital and Nursing Home Benefits* on pages 241-2), but are financed mainly from State Government funds.

#### DEPARTMENTAL AND BOARD HOSPITALS (a)

Particulars	1966-67	1967-68	1968-69	1969-70	1970-71
<b>Expenditure—</b>					
Capital funds.... \$'000	5,628	5,568	6,707	8,548	9,197
<b>Hospital Fund—</b>					
Establishment and domestic (b).... \$'000	2,877	3,937	4,129	5,076	6,913
Salaries and wages.... \$'000	19,255	21,404	24,330	28,958	36,142
Other.... \$'000	9,635	11,069	12,902	14,839	17,667
Tuberculosis.... \$'000	453	474	495	534	554
<b>Total.... \$'000</b>	<b>37,848</b>	<b>42,452</b>	<b>48,562</b>	<b>57,956</b>	<b>70,474</b>
<b>Number of—</b>					
<b>Hospitals (c)—</b>					
Departmental....	42	43	46	46	47
Board....	55	52	52	53	54
<b>Total....</b>	<b>97</b>	<b>95</b>	<b>98</b>	<b>99</b>	<b>101</b>
<b>Beds (d)—</b>					
Departmental....	3,257	3,223	3,274	3,073	3,167
Board....	3,442	3,449	3,583	4,009	4,071
<b>Total....</b>	<b>6,699</b>	<b>6,672</b>	<b>6,857</b>	<b>7,082</b>	<b>7,238</b>
<b>Staff (c)—</b>					
Medical....	210	205	264	306	393
Nursing....	4,352	4,656	4,651	5,003	5,622
Other....	4,655	4,896	5,097	5,518	5,939
<b>Total....</b>	<b>9,217</b>	<b>9,757</b>	<b>10,012</b>	<b>10,827</b>	<b>11,954</b>
<b>In-patients—</b>					
At beginning of year....	4,654	4,631	4,769	5,034	5,182
Admissions....	123,614	131,518	140,985	150,278	159,244
Discharges....	120,543	128,321	137,507	146,896	155,891
Deaths....	3,094	3,059	3,213	3,234	3,168
At end of year....	4,631	4,769	5,034	5,182	5,367
Average daily number resident....	4,534	4,648	4,873	4,922	5,112
<b>Out-patients—</b>					
Individuals....	253,502	279,555	339,644	378,538	416,540
Treatments....	769,233	786,293	861,384	807,748	988,028

(a) Includes particulars of the Perth Dental Hospital and Mount Henry Infirmary and Sunset Infirmary for geriatric patients. (b) Maintenance of equipment, furnishings and minor repairs. (c) At 30 June. (d) At 31 July.

As previously indicated, the control of tuberculosis is chiefly a State Government activity, supported by Commonwealth subsidies and carried out under the direction of the Commissioner of Public Health. The principal institution for the treatment of tuber-

culosis is the Sir Charles Gairdner Hospital at Hollywood which was opened in 1958 as the Perth Chest Hospital.

Leprosy, which is confined almost entirely to the far north of the State, is treated at a leprosarium at Derby in the Kimberley Division.

### Private Hospitals and Nursing Homes

In addition to the government hospitals there are a number of private general and maternity hospitals, which are registered and inspected by the Department of Public Health. The principal private hospitals are those established by religious bodies in the metropolitan area and the main country towns. These include the Hospitals of Saint John of God at Subiaco, Belmont, Bunbury, Geraldton, Kalgoorlie and Northam; Saint Anne's, Mount Lawley; the Mount Hospital, Perth; Bethesda Hospital, Claremont and the Hillcrest Maternity Hospital, North Fremantle.

Private hospitals collect fees from patients and receive Commonwealth hospital benefit payments provided under Part V of the *National Health Act* 1953-1971. At 30 June 1972 there were 116 private hospitals and nursing homes in Western Australia approved for payment of hospital benefits and nursing home benefits under the Act. These hospitals and homes had a total bed capacity of 4,679 at that date.

## MENTAL HEALTH SERVICES

The *Mental Health Act, 1962-1972*, which consolidates and amends the law relating to the treatment of mental disorders, came into operation on 1 July 1966. The Mental Health Services established under the Act are administered, subject to the control of the Minister for Health, by the Director of Mental Health Services. The Director must be a psychiatrist and is appointed by the Governor. Institutions authorised by the Act include hospitals for the treatment of mental illness, reception homes, out-patient and child guidance clinics, day hospitals, training centres, geriatric centres, hostels, and sheltered workshop units.

The Act provides for the admission of patients to hospitals approved for the purpose, either on referral by a medical practitioner or by order of a Justice of the Peace supported by the referral of a medical practitioner. A person so received into a hospital must be examined within seventy-two hours by the superintendent or another psychiatrist, and admission as a patient is dependent upon the result of the examination. Unless found to be in need of treatment, the person is required to leave the hospital. Special provisions exist for the detention for observation or treatment of persons admitted by order of a court or from a prison. The Act also provides for voluntary admissions. A person not less than eighteen years of age may be granted admission on his own request. Younger persons may be admitted on the application of a parent or guardian.

Except in the case of a person admitted by order of a court or from a prison, a patient may be released on leave or discharged by the hospital superintendent. A Board of Visitors or the Supreme Court of Western Australia may also, after due consideration, order the release of a patient. Where application for the discharge of a voluntary patient is made either by the patient himself or, in the case of a patient under the age of eighteen years, by the parent or guardian at whose request the patient was admitted, he must be discharged within seventy-two hours.

The principal institutions of the Mental Health Services are the Graylands Hospital and the Swanbourne Hospital. Other institutions include the Nathaniel Harper Homes for Children, Heathcote Hospital, Lemnos Hospital, Whitby Falls Hostel, Greenplace Hostel, Nedlands Hostel, the Community Development Centre, the Havelock Out-patient Clinic, the Fremantle Out-patient Clinic, the Kalgoorlie Out-patient Clinic, the Mildred Creak Centre for Autistic Children, the Child Guidance Clinic, the Irrabeena Referral Centre, the Industrial Rehabilitation Unit and the sheltered workshop at North Fremantle. There is the Pyrtton Training Centre for the intellectually handicapped at Bassendean and Mental Deficiency Division Hostels at Bassendean, Belmont, Scarborough, Subiaco and Armadale.

The following table shows particulars concerning the mental health service units operated by the Mental Health Services authority during the year ended 30 June 1971.

MENTAL HEALTH SERVICES—YEAR ENDED 30 JUNE 1971

Particulars	Approved hospitals	Rehabilitation units	Hostels	Training centres	Out-patient clinics
Expenditure—					
Salaries and wages .... \$'000	3,825	149	244	754	759
Other .... \$'000	1,206	16	106	212	176
Total .... \$'000	5,031	165	349	966	935
Number of (a)—					
Units ....	3	3	7	2	7
Beds ....	1,358	....	225	180	....
Staff—					
Medical ....	23	....	....	....	20
Nursing and attendants ....	515	....	50	167	35
Other ....	499	37	27	102	92
Total ....	1,037	37	77	269	147
Patients at beginning of year ....	2,178	363	161	116	n.a.
Admissions ....	2,373	431	163	329	(b) 39,097
Discharges (c) ....	2,183	426	134	310	n.a.
Patients at end of year ....	2,368	368	190	135	(d) 8,417

n.a. denotes 'not applicable'.

(a) At 30 June. (b) Number of out-patient attendances. (c) Includes deaths. (d) Patients treated during the year.

The Commonwealth Government provides financial assistance to the States for or in connection with the building or equipment of mental health institutions. Payments are made from the Consolidated Revenue Fund. Grants provided for under the *States Grants (Mental Health Institutions) Act 1964-1970* are equal to one-third of a State's capital expenditure on mental health institutions.

## CARE OF AGED AND DISABLED PERSONS

Part 5 of this Chapter gives particulars of pensions, allowances and some other benefits available to aged and disabled persons under the provisions of the Social Services Act, the Repatriation Act, the National Health Act and the Tuberculosis Act. Forms of assistance extended to such persons by other Commonwealth Acts are dealt with below.

### Aged Persons Homes Act

Under the provisions of the *Aged Persons Homes Act 1954-1972* the Commonwealth Government extends financial assistance to religious, charitable and other organisations in providing accommodation for the aged. The Act is administered, subject to any directions of the Minister, by the Director-General of Social Services.

Grants are made to organisations 'to encourage and assist the provision of suitable homes for aged persons, and in particular homes at which aged persons may reside in conditions approaching as nearly as possible normal domestic life . . .'. For the purposes of the Act, the term 'aged person' means a man aged sixty-five years or over or a woman aged sixty years or over and includes the spouse of the aged person. The Act authorises grants to eligible organisations to be applied towards the cost of erecting or purchasing approved homes to be used permanently for the accommodation of aged persons. To be eligible for assistance an organisation must be one which is carried on otherwise than for the purpose of profit or gain to its individual members, and may be a religious, charitable or benevolent organisation, an organisation of former members of the defence forces, an organisation approved by the Governor-General, or a local governing body. An organisation conducted or controlled by the Government of the Commonwealth or of a State is not eligible for assistance.

When the original Act commenced on 16 December 1954 the grant was made on the basis of \$1 for each \$1 raised by the organisation excluding borrowed money and money received from a governmental body. An amending Act, operative from 22 October 1957, increased the Commonwealth contribution to \$2 for each \$1 raised by the organisation. Grants are made from moneys appropriated by the Parliament from the Consolidated Revenue Fund.

#### AGED PERSONS HOMES GRANTS—WESTERN AUSTRALIA

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72	From inception to 30 June 1972
Grants approved (a)— Number ....	14	24	18	25	31	215
Persons accommodated— Type of accommodation—						
Self-contained ....	166	247	326	354	314	2,852
Hostel ....	35	235	97	207	182	1,549
Nursing ....	36	14	85	205	161	617
Total persons ....	237	496	508	766	657	5,018
Amount ....	\$'000 833	\$'000 1,855	\$'000 2,019	\$'000 3,335	\$'000 3,001	\$'000 17,138

(a) A supplementary grant may be approved in a year subsequent to the year when the original grant was approved. In this table each supplementary grant has been included in the year in which the additional amount was actually approved.

**Personal Care Subsidy.** An amendment to the Act operative from 10 October 1969 provides for payment of a Personal Care Subsidy to approved homes. Homes eligible for the subsidy are those where residents are provided with all meals and where staff is employed to assist residents who need help with bathing, dressing, personal laundry and the cleaning of their rooms, and those who need help with medication.

The subsidy is \$10 per week (increased from \$5 per week in terms of the *Aged Persons Homes Act* 1972, operative from 4 October 1972) in respect of each person aged eighty years or over residing in the approved accommodation. Payments are made from the National Welfare Fund, and expenditure in Western Australia in the period to 30 June 1972 amounted to \$356,060 (see also table on page 268).

#### PERSONAL CARE SUBSIDY—WESTERN AUSTRALIA

Particulars	1969-70	1970-71	1971-72
Number of approved premises (a) ....	29	32	32
Number of qualified residents (a) ....	492	505	441
Amount of subsidy paid ....	\$ 89,020	\$ 123,260	\$ 143,780

(a) At 30 June.

#### Aged Persons Hostels Act

The *Aged Persons Hostels Act* 1972 came into operation on 27 September 1972 and is administered, subject to any directions of the Minister, by the Director-General of Social Services. Its purpose is to assist the provision of additional hostel-type accommodation for aged persons by making grants to organisations which satisfy certain conditions related to existing accommodation. The maximum grant payable is \$7,800 for each aged person or necessary staff member accommodated.

#### Delivered Meals Subsidy Act

The *Delivered Meals Subsidy Act* 1970 came into operation on 15 April 1970. The Act is administered, subject to any directions of the Minister, by the Director-General of Social Services. Its purpose is to enable help to be given to approved organisations to

establish, maintain, expand and improve services for the delivery of meals to aged and invalid persons. To qualify for approval, an organisation must conduct a regular service delivering meals wholly or mainly to aged or invalid persons in their homes.

The original Act authorised payment of subsidy at the rate of 10 cents per meal. The *Delivered Meals Subsidy Act* 1972, operative from 31 October 1972, increases the rate to 15 cents per meal, and provides for a subsidy of 20 cents for each meal which includes fresh fruit or fruit juice. Payments are made from the National Welfare Fund, and expenditure in Western Australia in the period to 30 June 1972 amounted to \$77,766 (see also table on page 268).

### Sheltered Employment (Assistance) Act

The *Sheltered Employment (Assistance) Act* 1967 (Commonwealth), which came into operation on 30 June 1967, repealed the *Disabled Persons Accommodation Act* 1963 but incorporated and expanded the provisions of the repealed Act relating to assistance by the Commonwealth towards the provision of sheltered employment and accommodation for certain disabled persons. The Act is administered, subject to any directions of the Minister, by the Director-General of Social Services.

The Act provides that grants may be made to eligible organisations, deemed by the Minister to provide employment for disabled persons, as assistance towards meeting the cost of the purchase, construction or alteration of approved premises or the purchase of land for the provision of sheltered employment; the purchase or construction of approved residential accommodation for persons engaged in sheltered employment; rent payable in respect of approved premises; and the purchase of approved equipment. An amendment to the Act, operative from 26 October 1970, allows the payment of subsidy in respect of residential accommodation to be extended to include accommodation for disabled persons able to engage in normal employment; authorises the payment to organisations of a 'training fee' for each person who, after being employed for six months or longer in a sheltered workshop, has spent at least twelve months in normal employment; and provides for assistance towards the payment of salaries of certain staff associated with the training and accommodation of disabled persons.

### SHELTERED WORKSHOPS GRANTS—WESTERN AUSTRALIA

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
Number of grants approved for—					
Workshop premises	1	3	1	1	5
Workshop equipment	8	9	19	38	47
Workshop rental	1	2	1	1	3
Residential units	1	1	2	1	5
Training fees	....	....	....	1	6
Salary subsidy	....	....	....	30	73
Total	10	15	23	72	139
	\$	\$	\$	\$	\$
Amount of grants approved for—					
Workshop premises	25,948	225,520	74,279	21,933	144,027
Workshop equipment	18,173	25,853	27,244	60,566	42,835
Workshop rental	333	2,552	2,686	3,062	4,185
Residential units	....	152,567	82,001	9,323	277,593
Training fees	....	....	....	500	3,000
Salary subsidy	....	....	....	30,020	57,374
Total	44,454	406,492	186,210	125,404	529,014

### Sheltered Employment Allowances

During 1967, an amendment was made to the Social Services Act to permit invalid pensioners and certain other disabled persons to earn an income from sheltered employment, and at the same time to be eligible to receive a special allowance which, in the case of an invalid pensioner, replaces the pension. The maximum rate of the sheltered employment allowance is the same as the maximum rate of invalid pension (see letterpress

*Age and Invalid Pensions* in Part 5 of this Chapter). In addition, the recipient of an allowance who pays rent may receive supplementary assistance up to a maximum of \$4 per week, subject to a means test. The purpose of the sheltered employment allowance is to provide an incentive for disabled persons, whether in receipt of an invalid pension or not, to engage in gainful employment.

Provision is made in the Act for the maximum amount which may be earned from sheltered employment without affecting the special allowance and for reduction of the allowance where earnings exceed the prescribed amount.

The numbers of persons receiving allowances in Western Australia at 30 June in each year from 1968 to 1972 were : 1968, 26 ; 1969, 84 ; 1970, 97 ; 1971, 106 ; and 1972, 134.

Payments of allowances are met from the National Welfare Fund and commenced on 6 July 1967. During the period to 30 June 1972 expenditure in Western Australia amounted to \$286,281 (see also table on page 268).

### Handicapped Children (Assistance) Act

The *Handicapped Children (Assistance) Act* 1970, which came into operation on 17 June 1970, provides for subsidies to be paid by the Commonwealth to eligible organisations towards the capital cost of premises to be used for the training of handicapped children; the cost of equipment to be used for or in connection with such training; and the capital cost of residential accommodation for handicapped children receiving training. For the purposes of the Act a handicapped child is a person suffering from a physical or mental disability who is aged under twenty-one years, or has attained the age of twenty-one years but continues to receive approved training which was commenced before attaining that age. The Act is administered, subject to any directions of the Minister, by the Director-General of Social Services.

Grants towards the capital cost of premises or equipment are limited to two-thirds of the capital cost, or twice the sum which the organisation contributes from its own funds, whichever is the less.

The general purpose of the scheme is to help organisations to provide special facilities to enable training and accommodation to be provided for handicapped children. In many cases it is expected that the training will result in the children eventually engaging fully in the social and economic life of the community. Some will be helped to prepare for entry to sheltered employment, and to that extent the scheme may be regarded as complementary to the assistance programme for sheltered workshops. Other children will be assisted to achieve a greater measure of personal independence than would otherwise have been possible.

### HANDICAPPED CHILDREN ASSISTANCE GRANTS WESTERN AUSTRALIA

Particulars	1970-71	1971-72
Number of grants approved for—		
Training centres ....	1	....
Equipment ....	....	2
Accommodation centres ....	....	....
Total ....	1	2
	\$	\$
Amount of grants approved for—		
Training centres ....	80,071	....
Equipment ....	....	6,603
Accommodation centres ....	....	....
Total ....	80,071	6,603

### Other Commonwealth Assistance

Under a set of Acts passed in 1969 the Commonwealth Government extends financial assistance to the States for the development of a range of home care services, senior citizens' centres and nursing homes, mainly for the aged, and the construction of self-contained dwelling units for certain single aged pensioners. These Acts, all of which provide assistance commencing with the financial year 1969-70, are the *States Grants (Home Care) Act 1969*, the *States Grants (Paramedical Services) Act 1969*, the *States Grants (Nursing Homes) Act 1969* and the *States Grants (Dwellings for Aged Pensioners) Act 1969*.

Under the *States Grants (Home Care) Act* the Commonwealth shares with a State on a \$1 for \$1 basis the cost of approved housekeeping or other domestic services provided wholly or mainly for aged persons in their homes. The Commonwealth also shares with a State the cost of providing approved senior citizens' centres, on a \$1 for \$1 basis up to a maximum of one-third of the capital cost of the centres, as well as paying half the salary of a welfare officer engaged in the co-ordination of home care services and associated with a senior citizens' centre. Grants to Western Australia were first made in the year 1970-71.

HOME CARE SERVICES GRANTS  
WESTERN AUSTRALIA

Particulars	1970-71	1971-72
Amount of grants paid for—	\$	\$
Home care services ....	3,500	10,000
Senior citizens' centres ....	....	30,244
Welfare officers ....	....	....
Total ....	3,500	40,244

The *States Grants (Paramedical Services) Act* authorises the Commonwealth to share with a State on a \$1 for \$1 basis the cost of approved paramedical services, such as chiropody, occupational therapy, physiotherapy and speech therapy, provided wholly or mainly for aged persons in their homes. Payments are made from the Consolidated Revenue Fund and the maximum annual expenditure authorised by the Act is \$250,000, of which \$19,000 is payable to Western Australia. In the period to 30 June 1972, no grant had been made to Western Australia.

The *States Grants (Nursing Homes) Act* provides for the Commonwealth to share with a State on a \$1 for \$1 basis the capital costs of approved nursing homes wholly or mainly for aged persons of limited means. The Act stipulates that the Commonwealth's contribution during the five-year period ending 30 June 1974 shall not exceed \$5 million, Western Australia's share being a maximum of \$381,000. Grants are made from the Consolidated Revenue Fund. Payments to Western Australia commenced in 1970-71, when an amount of \$337,000 was received. The remaining amount of \$44,000 was received in 1971-72.

The *States Grants (Dwellings for Aged Pensioners) Act* authorises the Commonwealth to share with a State on a \$1 for \$1 basis the cost of providing self-contained dwellings for certain recipients of an age pension payable under the Social Services Act or a service pension under the Repatriation Act. Commonwealth expenditure during the five-year period to 30 June 1974 is limited to \$25 million, Western Australia's share being \$1.75 million. Payments are made from the Consolidated Revenue Fund. The first grant to Western Australia, amounting to \$700,000, was made in 1970-71, and a further amount of \$224,555 was received in 1971-72.

## *Chapter V—continued*

### **Part 4—Housing and Building**

#### **HOUSING AND THE CENSUS**

*NOTE. Dwellings occupied solely by full-blood Aborigines are excluded from all tables in this Part which contain information derived from the Census of Population and Housing. Such dwellings were excluded from the Census tabulations in accordance with the requirements of section 127 (now repealed) of the Australian Constitution; see letterpress Aborigines on page 123. Some details from the 1971 Census are given in the Appendix.*

---

The definitions given below are relevant when considering data derived from the Census of Population and Housing.

**OCCUPIED DWELLING.** For the purpose of the Census of Population and Housing an occupied dwelling is any habitation occupied by a household group living together as a domestic unit, and may comprise the whole of a building or only part of it. The term has therefore a very wide reference and includes, in addition to houses and flats, a great variety of dwellings ranging from a single-roomed shack to a multi-roomed hotel or institution.

**UNOCCUPIED DWELLINGS** include vacant dwellings available for sale or renting; dwellings such as week-enders or holiday homes and seasonal workers' quarters which were not occupied on Census night; dwellings normally occupied but whose occupants were temporarily absent on the night of the Census; newly-completed dwellings whose owners or tenants had not entered into occupation on Census night; and dwellings described as 'to be demolished', 'condemned', 'exhibition home', etc. The total number of un-occupied dwellings does not, therefore, represent the number of vacant houses and flats available for sale or renting.

**PRIVATE DWELLINGS** comprise the following classes:

**PRIVATE HOUSE**, which includes semi-detached houses; terrace houses; and shared private houses for which only one Householder's Schedule was received.

**SHARE OF PRIVATE HOUSE.** A share of a private house is a portion of a shared private house which is occupied separately and for which portion a separate Householder's Schedule was furnished.

**SELF-CONTAINED FLAT.** A self-contained flat is part of a house or other building which can be completely closed off and which has its own cooking and bathing facilities. Home units are included in this class.

**SHARE OF SELF-CONTAINED FLAT** is that portion of a shared self-contained flat for which a separate Householder's Schedule was furnished.

**SHED, HUT, TENT, ETC.** includes sheds, huts, tents, garages, caravans and boats which are used for dwelling purposes.

**OTHER PRIVATE DWELLINGS** include flats (not self-contained) and dwellings such as rooms, apartments, etc. which are parts of buildings but are not self-contained units.

## Dwellings at Censuses from 1901

The following table shows the numbers of occupied and unoccupied dwellings recorded in Western Australia at each Census from 1901 to 1966.

DWELLINGS—CENSUSES, 1901 TO 1966

Census date	Occupied dwellings				Unoccupied dwellings
	Private		Non-private	Total	
	Number	Average number of inmates			
1901—31 March .....	(a) 46,436	(b) 3.35	2,070	48,506	2,263
1911— 3 April .....	(c) 66,553	(d) 3.68	2,317	68,870	3,158
1921— 4 April .....	70,185	4.11	3,363	73,548	3,274
1933—30 June .....	100,441	3.95	3,137	103,578	4,029
1947—30 June .....	122,078	3.73	(e) 2,689	124,767	2,606
1954—30 June .....	159,496	3.64	(e) 3,327	162,823	6,614
1961—30 June .....	191,616	3.59	(e) 2,701	194,317	13,705
1966—30 June .....	221,444	3.52	(e) 3,219	224,663	17,965

(a) Comprises 17,702 dwellings of calico, canvas, and hessian, with an average of 2.10 inmates, and 28,734 other dwellings with an average of 4.12 inmates.  
 (b) See note (a). (c) Comprises 14,216 dwellings of calico, canvas, and hessian, with an average of 1.93 inmates, and 52,337 other dwellings with an average of 4.16 inmates.  
 (d) See note (c). (e) For further details see next table.

## Class of Dwelling

The following table shows the number of occupied dwellings in Western Australia according to class of dwelling at each Census from 1947 to 1966. Private houses constituted 90.7 per cent of all occupied private dwellings in 1966 compared with 91.6 per cent in 1961. The proportion of self-contained flats to total occupied private dwellings increased from 4.53 per cent in 1961 to 6.36 per cent in 1966.

DWELLINGS ACCORDING TO CLASS  
CENSUSES, 1947 TO 1966

Class of dwelling	Census, 30 June—			
	1947	1954	1961	1966
Occupied dwellings—				
Private dwellings—				
Private house ....	(a) 110,576	140,383	175,495	200,900
Share of private house ....	5,969	7,487	2,788	844
Self-contained flat ....	4,021	5,257	8,672	14,074
Share of self-contained flat ....				
Shed, hut, tent, etc. ....	(b)	4,480	3,641	3,439
Other private dwellings ....	1,512	1,889	1,020	2,169
Total, Private dwellings ....	122,078	159,496	191,616	221,444
Non-private dwellings—				
Caretaker's quarters ....	124	156	(c)	(c)
Licensed hotel ....	454	445	451	456
Motel ....	1,581	1,594	6	43
Boarding house, etc. ....				
Educational institution ....	106	127	(d)	70
Religious institution ....	11	20	(d)	100
Charitable institution ....	47	69	55	55
Hospital ....	143	138	151	188
Staff barracks ....	223	778	630	1,266
Other non-private dwellings ....				
Total, Non-private dwellings ....	2,689	3,327	2,701	3,219
Total, Occupied dwellings ....	124,767	162,823	194,317	224,663
Unoccupied dwellings ....	2,606	6,614	13,705	17,965

(a) Includes 'shed, hut, tent, etc.' (b) Not recorded separately; included with 'private house'. (c) Classified to 'private dwellings'. (d) Certain institutions previously classified as 'Educational' were classified as 'Religious'.

The following table gives particulars of the number of dwellings in each class at the Censuses of 1961 and 1966, together with the total numbers of persons enumerated in each class. Of the total of 832,181 persons enumerated in private and non-private dwellings in Western Australia at the Census of 30 June 1966, 88·7 per cent were in private houses (including shared houses), 3·58 per cent in self-contained flats (including shared flats), and 6·31 per cent in non-private dwellings. The corresponding percentages in 1961 were 90·0, 2·59, and 5·98.

**CLASS OF DWELLING AND PERSONS ENUMERATED  
CENSUSES, 1961 AND 1966**

Particulars	Census, 30 June 1961		Census, 30 June 1966					
	Total	Per cent of total	Perth Statistical Division	Other Divisions	Total	Per cent of total	Increase or decrease(a) since 1961	
							Number	Per cent
NUMBER OF DWELLINGS								
Occupied dwellings—								
Private dwellings—								
Private house .....	175,495	90·31	139,049	61,851	200,900	89·42	25,405	14·48
Share of private house .....	2,788	1·43	707	137	844	0·38	—1,944	—69·73
Self-contained flat....	8,672	4·46	{ 12,072	2,002	14,074	6·26	5,420	62·50
Share of self-contained flat(b)								
Shed, hut, tent, etc. ....	3,641	1·87	290	3,149	3,439	1·53	—202	—5·55
Other private dwellings ....	1,020	0·52	1,751	418	2,169	0·97	1,149	112·65
Total, Private dwellings	191,616	98·61	153,887	67,557	221,444	98·57	29,828	15·57
Non-private dwellings .....	2,701	1·39	1,098	2,121	3,219	1·43	518	19·18
Total, Occupied dwellings	194,317	100·00	154,985	69,678	224,663	100·00	30,346	15·62
Unoccupied dwellings ....	13,705	....	8,211	9,754	17,965	....	4,260	31·08

**PERSONS ENUMERATED (c)**

Persons enumerated in—								
Private dwellings—								
Private house .....	652,070	88·52	500,599	235,032	735,631	87·92	83,561	12·81
Share of private house .....	6,909	0·94	1,756	464	2,220	0·27	—4,689	—67·87
Self-contained flat....	18,977	2·58	24,843	4,953	29,796	3·56	10,840	57·12
Share of self-contained flat(b)	8,598	1·17	21	....	21	0·00	—180	—2·09
Shed, hut, tent, etc. ....	1,853	0·25	680	7,738	8,418	1·01	1,719	92·77
Other private dwellings ....			2,797	775	3,572	0·43		
Total, Private dwellings	688,407	93·45	530,696	248,962	779,658	93·19	91,251	13·26
Non-private dwellings .....	43,755	5·94	27,987	24,536	52,523	6·28	8,768	20·04
Total, Occupied dwellings	732,162	99·39	558,683	273,498	832,181	99·47	100,019	13·66
Persons enumerated elsewhere—								
Campers-out .....	1,450	0·20	138	1,316	1,454	0·17	4	0·28
Migratory population (d) ....	3,017	0·41	....	3,038	3,038	0·36	21	0·70
Total population .....	736,629	100·00	558,821	277,852	836,673	100·00	100,044	13·58

(a) Minus sign (—) denotes decrease. (b) At the 1961 Census, 'Share of self-contained flat' was not tabulated as a separate class; where two or more household groups were occupying a self-contained flat they were counted as one household group occupying a self-contained flat. (c) Excludes full-blood Aborigines; see letterpress *Aborigines* on page 123. (d) Comprises persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left an Australian port before Census night for a next port of call in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

### Number of Inmates

At the 1966 Census, 85·1 per cent of occupied private houses in Western Australia had less than six inmates, compared with 84·7 per cent in 1961. In 1966, 89·1 per cent of occupied self-contained flats had less than four inmates, compared with 87·2 per cent in 1961.

**OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS**  
**NUMBER OF INMATES (a): CENSUSES, 1961 AND 1966**

Number of inmates (a) per house or flat	Private house				Self-contained flat			
	Census, 30 June—				Census, 30 June—			
	1961	1966			1961	1966		
	Total, private houses	Perth Statistical Division	Other Divisions	Total	Total, self-con- tained flats	Perth Statistical Division	Other Divisions	Total
1	13,958	12,023	5,565	17,588	2,629	3,870	554	4,424
2	38,547	32,700	13,088	45,788	3,630	5,374	687	6,061
3	32,174	25,498	10,956	36,454	1,302	1,701	354	2,055
4	36,762	29,175	11,526	40,701	633	743	207	950
5	27,155	20,897	9,492	30,389	309	237	118	355
6	15,182	11,078	5,989	17,067	105	93	45	138
7	6,744	4,592	2,874	7,466	44	34	25	59
8	3,022	1,854	1,403	3,257	15	13	8	21
9	1,062	703	514	1,217	4	5	4	9
10 and over	889	529	444	973	1	2	....	2
Total houses, flats	175,495	139,049	61,851	200,900	8,672	12,072	2,002	14,074
Total inmates	652,070	500,599	235,032	735,631	18,977	24,843	4,953	29,796
Average number of inmates	3.72	3.60	3.80	3.66	2.19	2.06	2.47	2.12

(a) Excludes full-blood Aborigines; see letterpress *Aborigines* on page 123.

### Number of Rooms

Occupied private houses containing five rooms were the most numerous group in Western Australia at both the 1961 and 1966 Censuses, comprising respectively 40.2 per cent and 42.9 per cent of the total. In 1966, 85.5 per cent of occupied self-contained flats had less than five rooms, compared with 79.5 per cent in 1961.

**OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS**  
**NUMBER OF ROOMS: CENSUSES, 1961 AND 1966**

Number of rooms (a) per house or flat	Private house				Self-contained flat			
	Census, 30 June—				Census, 30 June—			
	1961	1966			1961	1966		
	Total, private houses	Perth Statistical Division	Other Divisions	Total	Total, self-con- tained flats	Perth Statistical Division	Other Divisions	Total
1	108	61	124	185	93	239	43	282
2	1,523	854	714	1,568	1,147	2,527	342	2,869
3	5,815	3,388	2,531	5,919	2,764	4,170	665	4,835
4	37,176	23,495	11,270	34,765	2,891	3,567	487	4,054
5	70,491	62,508	23,581	86,089	1,143	1,113	277	1,390
6	40,173	31,706	13,382	45,088	403	303	101	404
7	13,122	11,528	6,194	17,722	107	94	47	141
8	4,314	3,681	2,388	6,069	50	36	25	61
9	1,486	1,084	902	1,986	29	9	5	14
10 and over	1,101	744	765	1,509	4	14	10	24
Not stated	186	(b)	(b)	(b)	41	(b)	(b)	(b)
Total houses, flats	175,495	139,049	61,851	200,900	8,672	12,072	2,002	14,074
Average number of rooms	5.22	5.30	5.36	5.32	3.69	3.37	3.67	3.41

(a) Includes kitchen and permanently enclosed sleep-out, but does not include bathroom, toilet, pantry, laundry or store-room.  
 (b) In the small number of cases where the number of rooms was not stated, a number was selected during processing of the 1966 Census schedules.

### Material of Outer Walls

Brick and brick veneer predominated as materials of outer walls of occupied private dwellings in Western Australia at both the 1961 and 1966 Censuses, representing 42·7 per cent of private houses and 75·9 per cent of self-contained flats in 1961, and 49·9 per cent and 80·3 per cent in 1966. Fibro-cement was next in importance, being used in 31·7 per cent of private houses in 1961 and 30·5 per cent in 1966. The proportion of private houses with outer walls of wood declined from 16·9 per cent in 1961 to 13·1 per cent in 1966.

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS  
MATERIAL OF OUTER WALLS: CENSUSES, 1961 AND 1966

Material of outer walls	Private house				Self-contained flat			
	Census, 30 June—				Census, 30 June—			
	1961	1966			1961	1966		
	Total, private houses	Perth Statistical Division	Other Divisions	Total	Total, self-contained flats	Perth Statistical Division	Other Divisions	Total
Brick .....	74,939	81,812	7,554	89,366	6,579	10,382	688	11,070
Brick veneer (a) .....		9,451	1,487	10,938		191	40	231
Stone .....	3,303	1,562	1,518	3,080	238	194	49	243
Concrete .....	4,815	2,174	2,487	4,661	156	366	46	412
Wood .....	29,744	12,440	13,802	26,242	474	287	281	568
Iron, tin .....	5,330	386	3,702	4,088	153	15	166	181
Fibro-cement .....	55,637	31,083	30,204	61,287	1,043	629	729	1,358
Other .....	1,615	141	1,097	1,238	19	8	3	11
Not stated .....	112	(b)	(b)	(b)	10	(b)	(b)	(b)
Total .....	175,495	139,049	61,851	200,900	8,672	12,072	2,002	14,074

(a) So described in individual Census schedules.

(b) In the small number of cases where material of outer walls was not stated a material was selected during processing of the 1966 Census schedules.

### Nature of Occupancy

At the 1961 Census, 73·8 per cent of private houses in Western Australia were occupied by owners including purchasers by instalments, compared with 74·9 per cent in 1966. In the same period the proportion of private houses occupied by tenants, including tenants of government-owned houses, declined from 23·8 per cent to 22·8 per cent. Of the total number of occupied self-contained flats at the 1961 Census, 84·4 per cent were occupied by tenants and 12·7 per cent by owners. At the 1966 Census the proportions were 83·9 per cent and 13·4 per cent.

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS  
NATURE OF OCCUPANCY: CENSUSES, 1961 AND 1966

Nature of occupancy	Private house				Self-contained flat			
	Census, 30 June—				Census, 30 June—			
	1961	1966			1961	1966		
	Total, private houses	Perth Statistical Division	Other Divisions	Total	Total, self-contained flats	Perth Statistical Division	Other Divisions	Total
Owner (a) .....	129,583	109,647	40,864	150,511	1,100	1,573	306	1,879
Tenant .....	41,710	27,734	17,986	45,720	7,315	10,261	1,548	11,809
Caretaker .....	1,784	946	1,256	2,202	163	163	61	224
Other .....	1,867	416	1,221	1,637	72	35	50	85
Not stated .....	551	306	524	830	22	40	37	77
Total .....	175,495	139,049	61,851	200,900	8,672	12,072	2,002	14,074

(a) Including purchaser by instalments.

## Weekly Rents

The following table shows the numbers of unfurnished private houses and self-contained flats in each of the Statistical Divisions of Western Australia at the Census of 30 June 1966, classified according to weekly rent (unfurnished).

OCCUPIED PRIVATE TENANTED HOUSES AND SELF-CONTAINED FLATS (a)  
WEEKLY RENT (UNFURNISHED): CENSUS, 30 JUNE 1966

Weekly rent (unfurnished)	Statistical Division										Western Australia
	Perth	South- West	Southern Agricul- tural	Central Agricul- tural	Northern Agricul- tural	Eastern Gold- fields	Central	North- West	Pilbara	Kim- berley	

NUMBER OF PRIVATE HOUSES											
Under \$2.00 ....	819	509	188	304	204	191	49	12	23	39	2,338
\$2.00- \$3.99 ....	1,320	885	217	399	208	442	59	16	19	31	3,596
\$4.00- \$5.99 ....	2,731	847	365	668	325	504	50	40	17	17	5,564
\$6.00- \$7.99 ....	6,025	1,160	611	926	453	236	34	57	127	26	9,655
\$8.00- \$9.99 ....	5,539	697	417	646	493	114	4	94	48	31	8,083
\$10.00- \$11.99 ....	2,955	212	171	186	163	69	4	57	31	30	3,878
\$12.00- \$13.99 ....	1,990	89	59	59	74	24	1	11	22	90	2,419
\$14.00- \$15.99 ....	904	24	20	27	20	8	....	2	11	9	1,025
\$16.00- \$17.99 ....	420	13	11	11	12	6	....	18	1	3	495
\$18.00- \$19.99 ....	126	3	2	2	3	....	....	3	1	2	142
\$20.00 and over ....	332	18	4	8	9	4	....	4	2	5	386
Not stated ....	1,302	349	281	619	375	223	34	75	45	71	3,374
Total private tenanted houses ....	24,463	4,806	2,346	3,855	2,339	1,821	235	389	347	354	40,955
Average rent ....	\$ 8.37	\$ 5.69	\$ 6.49	\$ 6.13	\$ 6.61	\$ 4.72	\$ 3.68	\$ 8.57	\$ 7.46	\$ 8.54	\$ 7.48

NUMBER OF SELF-CONTAINED FLATS											
Under \$2.00 ....	193	21	15	15	3	12	2	3	1	....	265
\$2.00- \$3.99 ....	264	22	18	33	16	51	1	....	....	1	406
\$4.00- \$5.99 ....	235	30	17	31	18	43	....	....	1	2	377
\$6.00- \$7.99 ....	487	45	26	65	17	12	....	5	1	5	663
\$8.00- \$9.99 ....	565	19	26	17	12	4	....	2	2	8	655
\$10.00- \$11.99 ....	1,047	43	24	11	17	4	....	....	....	5	1,151
\$12.00- \$13.99 ....	1,783	23	14	6	13	7	....	1	1	1	1,849
\$14.00- \$15.99 ....	1,009	7	10	4	2	3	....	....	1	....	1,036
\$16.00- \$17.99 ....	359	1	2	....	8	1	....	....	....	....	371
\$18.00- \$19.99 ....	119	4	....	....	1	3	....	....	....	....	127
\$20.00 and over ....	185	2	2	4	....	3	....	1	....	....	197
Not stated ....	527	24	11	20	17	11	2	6	2	4	624
Total private tenanted flats ....	6,773	241	165	206	124	154	5	18	9	26	7,721
Average rent ....	\$ 11.45	\$ 7.69	\$ 7.84	\$ 6.40	\$ 8.11	\$ 5.57	\$ 0.67	\$ 7.13	\$ 7.81	\$ 8.47	\$ 10.93

(a) Includes dwellings occupied by tenants of The State Housing Commission of Western Australia.

At the 1966 Census, of the tenanted private houses for which rent (unfurnished) was stated, 77.79 per cent had rentals below \$10 per week, while the corresponding proportion for tenanted flats was 33.34 per cent. The average weekly rent of private houses (\$7.48) was considerably lower than the figure for flats (\$10.93).

More than one-half (59.73 per cent) of the tenanted private houses and 87.72 per cent of the tenanted flats in Western Australia were situated in the Perth Statistical Division.

Compared with other Statistical Divisions and Western Australia as a whole, average weekly rentals were highest for private houses in the North-West Statistical Division, while the Perth Statistical Division had the highest average rentals for tenanted flats. The Central Statistical Division showed the lowest average rentals for both dwelling types.

## Facilities

At the 1961 Census the question on facilities (gas, electricity, television set) was answered in relation to 190,457 private dwellings in Western Australia. Of this total, 61·3 per cent had electricity only, 33·5 per cent had both electricity and gas, and 4·99 per cent had neither electricity nor gas. At the 1966 Census, when replies were furnished in relation to 220,620 private dwellings, the proportions were 60·8 per cent with electricity only, 37·1 per cent with both electricity and gas, and 1·64 per cent with neither electricity nor gas. At the 1961 Census, 37·5 per cent of occupied private dwellings were stated to have a television set, compared with 68·6 per cent in 1966.

In the following table similar information is shown for private houses and self-contained flats at the Censuses of 1961 and 1966.

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS  
FACILITIES: CENSUSES, 1961 AND 1966

Facilities	Private house				Self-contained flat			
	Census, 30 June—				Census, 30 June—			
	1961	1966			1961	1966		
	Total, private houses (a)	Perth Statistical Division	Other Divisions	Total	Total, self-con- tained flats	Perth Statistical Division	Other Divisions	Total
Gas only .....	419	118	613	731	7	8	14	22
Electricity only .....	112,086	85,220	41,422	126,642	2,948	3,887	1,371	5,258
Gas and electricity .....	56,101	53,192	17,224	70,416	5,667	8,148	585	8,733
Neither gas nor electricity .....	9,401	404	2,246	2,650	33	5	15	20
Not stated .....	1,129	115	346	461	17	24	17	41
Total .....	(a)179,136	139,049	61,851	200,900	8,672	12,072	2,002	14,074
Television set .....	68,424	118,066	24,482	142,548	2,514	7,653	473	8,126

(a) Includes sheds, huts, etc. See second table on page 212.

## Motor Vehicles

The question concerning motor vehicles used by members of households (see footnote to following table) was included in the census schedule in 1966 for the first time. Of the total of 198,100 occupied private houses in Western Australia for which replies were received, 17·8 per cent had no vehicle, 53·7 per cent had one vehicle, 20·9 per cent had two vehicles, 5·37 per cent had three vehicles, and 2·19 per cent had four or more vehicles. The corresponding proportions for self-contained flats were 35·6 per cent, 53·5 per cent, 9·24 per cent, 1·31 per cent, and 0·32 per cent.

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS  
NUMBER OF MOTOR VEHICLES (a): CENSUS, 30 JUNE 1966

Number of motor vehicles (a)	Private house			Self-contained flat		
	Perth Statistical Division	Other Divisions	Total	Perth Statistical Division	Other Divisions	Total
No vehicle .....	27,465	7,872	35,337	4,372	499	4,871
1 vehicle .....	75,935	30,483	106,418	6,241	1,085	7,326
2 vehicles .....	27,719	13,657	41,376	1,008	257	1,265
3 vehicles .....	5,092	5,544	10,636	131	48	179
4 or more vehicles .....	1,100	3,233	4,333	26	18	44
Not stated .....	1,738	1,062	2,800	294	95	389
Total houses, flats .....	139,049	61,851	200,900	12,072	2,002	14,074
Total vehicles (a) .....	151,394	89,203	240,597	8,783	1,827	10,610

(a) Householders were asked to state 'the number of Motor Vehicles (excluding Motor Cycles and Scooters) used by members of this household that were garaged or parked at or near this dwelling for the night of Thursday, 30th June'.

### Unoccupied Dwellings

For dwellings not occupied on the night of the Census, collectors were required to determine as many particulars as possible and, where the information was available, to enter on the Census schedule the reason why the dwelling was unoccupied. That this information could not be ascertained in a high proportion of cases is evident from the numbers shown in the following table in the category 'Other and not stated', equivalent to 17·1 per cent of all unoccupied private dwellings in 1961 and 34·1 per cent in 1966.

UNOCCUPIED PRIVATE DWELLINGS—CENSUSES, 1961 AND 1966

Reason for being unoccupied	Census, 30 June—			
	1961	1966		
	Total, unoccupied private dwellings	Perth Statistical Division	Other Divisions	Total
For sale or for renting ....	2,487	1,593	1,192	2,785
Holiday home, week-end, seasonal workers' quarters ....	4,771	2,266	2,852	5,118
Occupants temporarily absent ....	3,463	1,828	1,390	3,218
To be demolished, condemned ....	296	187	197	384
Other and not stated ....	2,273	2,309	3,653	5,962
Total ....	13,290	8,183	9,284	17,467

### Geographical Distribution of Dwellings

**Statistical Divisions.** The following tables show the numbers and proportions of occupied dwellings in each of the Statistical Divisions of Western Australia at each Census from 1911 to 1966, and a dissection according to class of dwelling at the Censuses of 1961 and 1966.

Between the Censuses of 1961 and 1966, the number of occupied private houses in the Perth Statistical Division increased by 18·4 per cent compared with an increase of 6·46 per cent in the rest of the State. The number of occupied self-contained flats rose by 65·7 per cent in the Perth Statistical Division and 44·5 per cent in the rest of the State. The total number of occupied private dwellings in the Perth Statistical Division rose by 19·9 per cent. Other Divisions showing an increase were North-West, 75·6 per cent; Kimberley, 63·1 per cent; Pilbara, 59·7 per cent; Northern Agricultural, 11·1 per cent; Southern Agricultural, 8·19 per cent; South-West, 5·07 per cent; and Central Agricultural, 2·58 per cent. Divisions in which a decrease was recorded were Central, 11·4 per cent, and Eastern Goldfields, 2·28 per cent.

OCCUPIED DWELLINGS IN STATISTICAL DIVISIONS—CENSUSES, 1911 TO 1966  
(Figures compiled on the basis of the 1966 boundaries)

Statistical Division (a)	Census date						
	1911 3 April	1921 4 April	1933 30 June	1947 30 June	1954 30 June	1961 30 June	1966 30 June
Perth Statistical Division ....	24,358	35,190	53,394	74,478	102,745	129,488	154,985
Other Divisions—							
South-West ....	7,381	8,319	12,544	13,611	17,336	18,714	19,703
Southern Agricultural ....	3,903	4,654	6,410	6,522	9,159	10,775	11,688
Central Agricultural ....	8,115	9,026	12,352	10,872	13,378	14,097	14,540
Northern Agricultural ....	2,953	3,846	5,963	5,691	7,403	8,338	9,345
Eastern Goldfields ....	17,058	9,808	9,271	10,614	9,607	9,389	9,257
Central ....	3,261	1,344	2,247	1,628	1,205	1,015	926
North-West ....	416	389	526	506	749	922	1,624
Pilbara ....	856	414	323	322	564	643	1,047
Kimberley ....	569	558	548	523	677	936	1,548
Total ....	44,512	38,358	50,184	50,289	60,078	64,829	69,678
WESTERN AUSTRALIA ....	68,870	73,548	103,578	124,767	162,823	194,317	224,663

(a) For component local government areas, see map at back of Year Book.

OCCUPIED DWELLINGS IN STATISTICAL DIVISIONS—CENSUSES, 1911 TO 1966  
PERCENTAGE DISTRIBUTION

(Figures compiled on the basis of the 1966 boundaries)

Statistical Division (a)	Census date						
	1911 3 April	1921 4 April	1933 30 June	1947 30 June	1954 30 June	1961 30 June	1966 30 June
Perth Statistical Division	35.37	47.85	51.55	59.69	63.10	66.64	68.99
Other Divisions—							
South-West	10.72	11.31	12.11	10.91	10.65	9.63	8.77
Southern Agricultural	5.67	6.33	6.19	5.23	5.63	5.55	5.20
Central Agricultural	11.78	12.27	11.93	8.71	8.22	7.25	6.47
Northern Agricultural	4.29	5.23	5.76	4.56	4.55	4.29	4.16
Eastern Goldfields	24.77	13.34	8.95	8.51	5.90	4.83	4.12
Central	4.74	1.83	2.17	1.30	0.74	0.52	0.41
North-West	0.60	0.53	0.51	0.41	0.46	0.47	0.72
Pilbara	1.24	0.56	0.31	0.26	0.35	0.33	0.47
Kimberley	0.83	0.76	0.53	0.42	0.42	0.48	0.69
Total	64.63	52.15	48.45	40.31	36.90	33.36	31.01
WESTERN AUSTRALIA	100.00	100.00	100.00	100.00	100.00	100.00	100.00

(a) For component local government areas, see map at back of Year Book.

OCCUPIED DWELLINGS IN STATISTICAL DIVISIONS—CLASS OF DWELLING  
CENSUSES, 1961 AND 1966

Statistical Division (a)	Private dwellings						Total, private dwellings	Non- private dwellings	Total, occupied dwellings
	Private house	Share of private house	Self-con- tained flat	Share of self-con- tained flat	Shed, hut, tent, etc.	Other			

CENSUS, 30 JUNE 1961										
Perth Statistical Division ....	117,397	2,258	7,287	(b)	544	815	128,301	1,187	129,488	
Other Divisions—										
South-West .....	17,292	167	419		544	44	18,466	248	18,714	
Southern Agricultural .....	9,716	72	205		568	20	10,581	194	10,775	
Central Agricultural .....	12,902	146	183		577	22	13,830	267	14,097	
Northern Agricultural .....	7,415	77	149		449	28	8,118	220	8,338	
Eastern Goldfields....	8,112	50	372		555	74	9,163	226	9,389	
Central .....	778	....	7		147	....	932	83	1,015	
North-West .....	720	4	22		81	8	835	87	922	
Pilbara .....	487	6	12		62	1	568	75	643	
Kimberley .....	676	8	16		114	8	822	114	936	
Total .....	58,098	530	1,385			3,097	205	63,315	1,514	64,829
WESTERN AUSTRALIA	175,495	2,788	8,672		3,641	1,020	191,616	(c) 2,701	194,317	

## CENSUS, 30 JUNE 1966

Perth Statistical Division	139,049	707	12,072	18	290	1,751	153,887	1,098	154,985
Other Divisions—									
South-West	18,398	34	561		308	102	19,403	300	19,703
Southern Agricultural	10,672	13	291		417	55	11,448	240	11,688
Central Agricultural	13,378	23	325		409	52	14,187	353	14,540
Northern Agricultural	8,251	16	271		417	68	9,023	322	9,345
Eastern Goldfields	7,848	32	405		556	114	8,955	302	9,257
Central	686	3	11		123	3	826	100	926
North-West	966	6	50		431	13	1,466	158	1,624
Pilbara	645	2	30		226	5	908	139	1,047
Kimberley	1,007	8	58		262	6	1,341	207	1,548
Total	61,851	137	2,002		3,149	418	67,557	2,121	69,678
WESTERN AUSTRALIA	200,900	844	14,074	18	3,439	2,169	221,444	(c) 3,219	224,663

(a) For component local government areas, see map at back of Year Book. (b) Not tabulated separately; where two or more household groups were occupying a self-contained flat they were counted as one household group occupying a self-contained flat. (c) For dissection according to class of dwelling see second table on page 212.

**Australian States.** The following table gives a dissection according to class of dwellings recorded in each of the Australian States and in Australia as a whole at the Census of 30 June 1966.

DWELLINGS ACCORDING TO CLASS—AUSTRALIAN STATES  
CENSUS, 30 JUNE 1966

Class of dwelling	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Australia (a)
Occupied dwellings—							
Private dwellings—							
Private house .....	961,077	752,776	381,681	271,045	200,900	88,780	2,681,725
Share of private house .....	11,496	9,166	1,586	2,140	844	469	25,914
Self-contained flat .....	164,380	92,166	43,069	20,802	14,074	7,036	345,585
Share of self-contained flat .....	666	277	104	61	18	22	1,168
Shed, hut, tent, etc. ....	12,309	3,725	7,952	1,938	3,439	882	31,056
Other private dwellings .....	28,194	23,338	7,759	3,644	2,169	1,093	66,478
Total, Private dwellings .....	1,178,122	881,448	442,151	299,630	221,444	98,282	3,151,926
Non-private dwellings .....	11,417	7,536	7,018	2,684	3,219	1,084	33,730
Total, Occupied dwellings .....	1,189,539	888,984	449,169	302,314	224,663	99,366	3,185,656
Unoccupied dwellings .....	101,546	64,757	41,818	25,110	17,965	10,800	263,873

(a) Includes Northern Territory (7,499 occupied private dwellings and 568 occupied non-private dwellings) and Australian Capital Territory (23,350 occupied private dwellings and 204 occupied non-private dwellings).

In the following table occupied dwellings recorded in each State and Territory at the 1966 Census are classified as *Metropolitan Urban*, *Other Urban* or *Rural* in accordance with the criteria outlined on page 130.

OCCUPIED DWELLINGS (a)—METROPOLITAN, OTHER URBAN, AND RURAL (b)  
STATES AND TERRITORIES: CENSUS, 30 JUNE 1966

State or Territory	Urban			Rural	Total
	Metropolitan	Other	Total		
NUMBER OF DWELLINGS					
New South Wales ....	706,595	334,201	1,040,796	148,743	1,189,539
Victoria ....	593,408	174,555	767,963	121,021	888,984
Queensland ....	200,239	150,935	351,174	97,995	449,169
South Australia ....	205,457	46,926	252,383	49,931	302,314
Western Australia ....	139,509	36,906	176,415	48,248	224,663
Tasmania ....	32,371	38,155	70,526	28,840	99,366
Northern Territory ....	.....	6,503	6,503	1,564	8,067
Australian Capital Territory ....	22,763	.....	22,763	791	23,554
AUSTRALIA ....	1,900,342	788,181	2,688,523	497,133	3,185,656
PERCENTAGE DISTRIBUTION					
New South Wales ....	59.40	28.10	87.50	12.50	100.00
Victoria ....	66.75	19.64	86.39	13.61	100.00
Queensland ....	44.58	33.60	78.18	21.81	100.00
South Australia ....	67.96	15.52	83.48	16.52	100.00
Western Australia ....	62.10	16.43	78.52	21.48	100.00
Tasmania ....	32.58	38.40	70.98	29.02	100.00
Northern Territory ....	.....	80.61	80.61	19.39	100.00
Australian Capital Territory ....	96.64	.....	96.64	3.36	100.00
AUSTRALIA ....	59.65	24.74	84.39	15.61	100.00

(a) Private and non-private.

(b) See page 130 for definitions of *Metropolitan*, *Other Urban*, and *Rural*.

## GOVERNMENT AND GOVERNMENT-SPONSORED HOUSING

### The State Housing Commission

The State Housing Commission was established in January 1947 under the State Housing Act of 1946 to replace the Workers' Homes Board which had been created in

1912 to 'erect and dispose of workers' dwellings, and to make advances to people of limited means to provide homes for themselves'. The Act confers on the Commission the legal authority formerly vested in the Board and has as its objects 'the improvement of existing housing conditions' and 'the provision of adequate and suitable housing accommodation for persons of limited means and certain other persons not otherwise adequately housed'. The legislation is comprehensive in scope, providing for the erection of homes for workers, the making of advances to workers for the purchase of homes, the erection of homes for letting on a weekly rental basis, the acquisition and development of land, the clearing of slums, the erection of hostels and the planning of community facilities.

The Commission consists of seven members of whom one must be the person occupying the office of General Manager of the Commission, one an officer of the State Public Service, one a representative of the building trades unions, one a registered builder (or a person qualified to be so registered), one a woman, one a discharged member of the Forces, and one a person with a wide knowledge of and experience in housing conditions in the State. The functions of the Commission include the State-wide provision of low-cost housing for purchase or rental by families of low and moderate income, under the authority of the State Housing Act and of the States Grants (Housing) Act (Commonwealth) which, on 1 July 1971, replaced the Commonwealth and State Housing Agreements; the administration of the Building Societies Act and the Housing Loan Guarantee Act; the administration of the War Service Homes Act (Commonwealth) as it applies to Western Australia; and the construction and maintenance of dwellings on behalf of the Government Employees' Housing Authority. Tables showing the operations of the Commission are shown on pages 223-4.

**State Housing Act.** Under the authority of the *State Housing Act, 1946-1972*, the State Housing Commission uses funds provided by the State Government to build dwellings for sale and to lend money for home building. Eligibility for assistance is restricted to persons with income below a prescribed amount, which varies according to movements in the State basic wage, but north of 26°S. latitude the Minister may allow assistance to a family having a higher income. Loans of up to \$9,000 (or more, in some cases) may be made on a minimum deposit of \$200 including the ingoing fees (or less, at the discretion of the Commission), the maximum period of repayment being forty-five years. The rate of interest (31 December 1972) is 5½ per cent per annum reducible.

Various forms of assistance have been granted to encourage home ownership, including loans secured by mortgage, advances made under contract of sale, advances for acquiring homes under leasehold conditions, second mortgage loans and loans for the completion of partly-built dwellings.

**Commonwealth and State Housing Agreements.** The final draft of an agreement on housing between the Commonwealth and State Governments was prepared at the Conference of Premiers in August 1945 and was later ratified by Commonwealth and State legislation. The Commonwealth and State Housing Agreement Act, passed by the State Parliament in 1945, enabled Western Australia to participate in the Agreement, the purpose of which was to provide homes quickly, primarily for persons at the lower income levels, by standardisation of design and erection in large groups. The Agreement provided a broad basis of collaboration between the Commonwealth and the State with the Commonwealth providing advances of money, general direction on policy and co-ordination of effort and the State undertaking the actual site acquisition and planning, the construction of the dwellings, the selection of tenants and the detailed administrative work.

Further details of the 1945 Agreement are given on page 203 of the *Western Australian Year Book*, No. 8—1969 and in earlier issues.

With the expiry of the 1945 Agreement, the Commonwealth Parliament in 1956 passed the Housing Agreement Act providing 'financial assistance to the States for the

purpose of housing' for a period of five years ending on 30 June 1961. The complementary State legislation authorising the State Government to enter into the Agreement is the Commonwealth and State Housing Agreement Act of 1956.

The 1956 Agreement required that, for the first two years of its operation, at least 20 per cent of the money allocated to the State was to be advanced to building societies and other approved institutions for lending to private persons for the building or purchase of homes, the proportion to be increased to not less than 30 per cent during the remainder of the period. The balance of the allocation was to be used by the State for the erection of houses for either rental or sale. The Commonwealth was entitled to specify that of this balance a portion not exceeding 5 per cent in any one year should be set aside for the erection of houses for serving members of the defence forces. The Commonwealth provided supplementary advances to the State equal to the amounts set aside for this purpose.

On the introduction of the 1956 Agreement, the State Housing Commission adopted the policy of offering for sale before occupancy one-half of the total number of houses built, the remainder being made available on a rental basis. The proportion was subsequently varied several times.

Under the provisions of Commonwealth and State legislation passed in 1961 the period of operation of the Commonwealth and State Housing Agreement was extended for a further five years to 30 June 1966. The 1961 Agreement incorporated all the main features of the earlier arrangement, with only minor modifications.

In terms of the *Housing Agreement Act 1966* (Commonwealth) and the *Commonwealth and State Housing Agreement Act, 1966* (State) the operation of the Agreement, with minor amendments, was extended until 30 June 1971.

Although Agreements subsequent to that of 1945, and which were effective until 30 June 1971, made no provision for rebates to tenants unable to pay the full rental, the State Government continued the system during the period.

**States Grants (Housing) Act.** The Commonwealth and State Housing Agreement was not renewed and from 1 July 1971 new arrangements operate under the authority of the *States Grants (Housing) Act 1971*, which has considerably altered the principles of the previous Agreements.

Under the new legislation the States continue to determine the amount from their annual Loan Council borrowing programmes which is to be allocated to housing. Instead, however, of this amount being advanced to the States at a concessional rate of interest (as was the case under previous Agreements), the Commonwealth makes cash grants of \$2.75 million a year payable for thirty years in respect of each year's housing programme over the period 1971-72 to 1975-76. There was thus a total payment to the States of \$82.5 million in respect of 1971-72 housing activity and the same practice will apply regarding each of the succeeding four years. The total amount of assistance provided by the Commonwealth will therefore be \$412.5 million spread over thirty-four years.

Certain conditions are attached to payment of the grants which are shared among the States in proportions specified in the Act. Western Australia's share is 11.4 per cent or \$313,500 per annum over the period nominated.

In addition to this basic housing grant, the legislation also provides for payment of a rental assistance grant to help the States meet the cost to them of reducing the rents of housing authority dwellings for families considered to have insufficient means to pay the rents ordinarily required by the authority. The grant of \$1.25 million is payable to the States in each of the five years 1971-72 to 1975-76, a total of \$6.25 million. Payment is in specified proportions, Western Australia's share being 11.5 per cent or \$143,750 per annum.

A separate agreement between the Commonwealth and the States has been entered into covering the provision of housing for serving members of the armed forces. Under the new agreement the Commonwealth will provide by way of repayable advances all the funds required and the States will no longer be required to set aside part of their housing allocation for this purpose.

**States Grants (Dwellings for Aged Pensioners) Act.** Under the provisions of the *States Grants (Dwellings for Aged Pensioners) Act* 1969 the Commonwealth has made available to the States a grant totalling \$25 million over a period of five years for the construction of self-contained dwellings for single aged pensioners. Western Australia will receive a total of \$1.75 million over the period and under this scheme the Commission built twenty-eight units in 1969-70, seventy-six units in 1970-71, and twelve in 1971-72.

**Other Functions.** The State Housing Commission conducts certain other housing schemes and has completed, or is currently engaged on, other specific projects on behalf of the State Government. Under a 'Departmental Homes' scheme, which commenced in 1952-53, 1,941 houses were built in the period to 30 June 1972 for Government Departments and semi-government authorities. A Government Employees' Housing Scheme was introduced in 1958-59 and, up to 30 June 1972, had provided 619 rental houses in country areas. (See also the section *Government Employees' Housing Authority* on page 224.) The Commission has also undertaken the erection of flats for occupation by widows and by aged women pensioners, as well as cottage flats for aged married couples. Design and supervision services have been made available free of cost to several private charitable organisations which are developing pensioner housing schemes financed jointly by these organisations and the Commonwealth Government under the *Aged Persons Homes Act* 1954-1969 (Commonwealth). The Commission has also been made responsible from time to time for special housing schemes for industry or major developmental projects.

### Operations of The State Housing Commission

In this section, a summary of the activities of The State Housing Commission is given. The first table on page 224 shows the number of housing units completed by the Commission in various categories during each year from 1967-68 to 1971-72. It also shows the numbers of housing units in connection with which the Commission provided design and supervisory services free of cost to private charitable organisations.

THE STATE HOUSING COMMISSION  
REVENUE, EXPENDITURE AND FUNDS EMPLOYED  
(\$'000)

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
<b>Revenue—</b>					
Rentals .....	6,629	7,000	7,448	8,701	9,862
Profit on sale of—					
Houses and land .....	5,830	3,820	3,643	5,356	2,779
Sundry assets .....	7	3	6	5	6
Interest—					
Home purchase .....	4,731	5,319	5,787	6,120	4,763
Other .....	8	15	21	32	55
Recoup of management expenses .....	1,270	1,396	1,665	2,039	4,006
Fees and miscellaneous .....	337	408	473	558	583
<b>Total Revenue .....</b>	<b>18,812</b>	<b>17,961</b>	<b>19,043</b>	<b>22,811</b>	<b>22,054</b>
<b>Expenditure—</b>					
Interest—					
Loan capital .....	5,662	6,078	6,644	7,999	7,964
Debentures .....	502	592	681	837	1,023
Loan repayment .....	789	832	902	989	1,090
Management expenses .....	2,410	2,730	3,167	3,946	4,814
Rental outgoings .....	2,267	2,579	2,919	2,558	3,870
Other .....	89	58	66	75	147
<b>Total Expenditure .....</b>	<b>11,719</b>	<b>12,869</b>	<b>14,379</b>	<b>16,404</b>	<b>18,908</b>
<b>Surplus .....</b>	<b>7,093</b>	<b>5,092</b>	<b>4,664</b>	<b>6,407</b>	<b>3,146</b>
<b>Funds employed at 30 June—</b>					
Loan indebtedness—					
Government advances .....	165,414	179,592	193,043	210,243	232,265
Debenture issues .....	9,920	11,502	13,335	15,581	18,038
Commonwealth special grants .....	5,047	4,986	4,924	5,563	5,727
Accumulated surpluses and reserves .....	21,087	26,343	31,167	37,840	40,495
<b>Total Funds employed .....</b>	<b>201,468</b>	<b>222,423</b>	<b>242,469</b>	<b>269,227</b>	<b>296,525</b>

## THE STATE HOUSING COMMISSION—DWELLINGS CONSTRUCTION

Category	1967-68	1968-69	1969-70	1970-71	1971-72
Housing units (a) completed—					
State Housing Act .....	390	539	736	602	889
Commonwealth and State Housing Agreements (b) .....	824	936	1,088	2,368	1,360
Departmental Homes—					
Native Welfare Department .....	73	60	84	61	48
Other Departments .....	74	128	114	131	79
Government Employees' Housing .....	34	52	119	96	97
Shire Building Scheme (c) .....	.....	2	31	25	23
War Service Homes .....	141	138	77	129	54
Dwellings for Aged Pensioners (d) .....	.....	.....	28	76	12
Other (e) .....	8	.....	21	7	.....
Total .....	1,544	1,855	2,298	3,495	2,562
Other activities (f) .....	13	8	62	4	19

(a) Comprises houses and individual flat units. (b) From 1 July 1971 replaced by the *States Grants (Housing) Act 1971*.  
(c) For local government employees. (d) Constructed under the provisions of the *States Grants (Dwellings for Aged Pensioners) Act 1969*.  
(e) Comprises houses built by the Commission in terms of the *Laporte Industrial Factory Agreement Act, 1961-1965*, the *Broken Hill Proprietary Company's Integrated Steel Works Agreement Act, 1960*, the *Exmouth Development Scheme and Project Development (Special Agreements Scheme)*.  
(f) The figures shown represent housing units built by charitable organisations in connection with which the Commission provided design and supervisory services.

## Government Employees' Housing Authority

The Government Employees' Housing Authority is established under the provisions of the *Government Employees' Housing Act, 1964* to provide adequate and suitable housing accommodation for employees of State Government Departments to which the Act applies.

The Authority is empowered to enter into an agreement with the State Housing Commission whereby the Commission shall act as its agent upon such terms as may be mutually agreed upon by the Authority and the Commission.

## War Service Homes

Under the *War Service Homes Act 1918-1971* the Commonwealth Government provides assistance in acquiring a home to persons who satisfy the eligibility conditions set out in the Act. Persons eligible for assistance include members of the Australian Forces and nursing services enlisted or appointed for or employed on active service outside Australia or on a ship of war during the first and second World Wars, or who served in the war-like operations in Korea or Malaya, or who have served on 'special service' as defined in the *Repatriation (Special Overseas Service) Act 1962-1972* (e.g. South Vietnam). The categories of eligible persons also include the widow of an eligible person and, in certain circumstances, the widowed mother of a deceased eligible person and members of the mercantile marine service. The maximum amount of loan is \$9,000 and the rate of interest 3½ per cent.

The State Housing Commission acts as the representative in Western Australia of the Director of War Service Homes.

## WAR SERVICE HOMES SCHEME—OPERATIONS IN WESTERN AUSTRALIA

Year	Homes provided during year				Total homes provided from inception to end of year	Annual expenditure	Installments paid	Loans repaid
	By erection	By purchase	By discharge of mortgage	Total				
	No.	No.	No.	No.	No.	\$'000	\$'000	No.
1967-68 .....	142	262	83	487	27,403	3,520	7,561	571
1968-69 .....	138	240	108	486	27,889	3,750	8,280	727
1969-70 .....	77	234	151	462	28,351	4,100	8,041	677
1970-71 .....	129	240	136	505	28,856	4,675	7,376	480
1971-72 .....	54	263	144	461	29,317	4,623	7,912	651



Blocks by courtesy of the Forests Department

#### PLATE 5—MARSUPIAL MOUSE

Two views of the Mardo or Yellow-footed Marsupial Mouse (*Antechinus flavipes leucogaster*) found in the jarrah forest near Dwellingup.



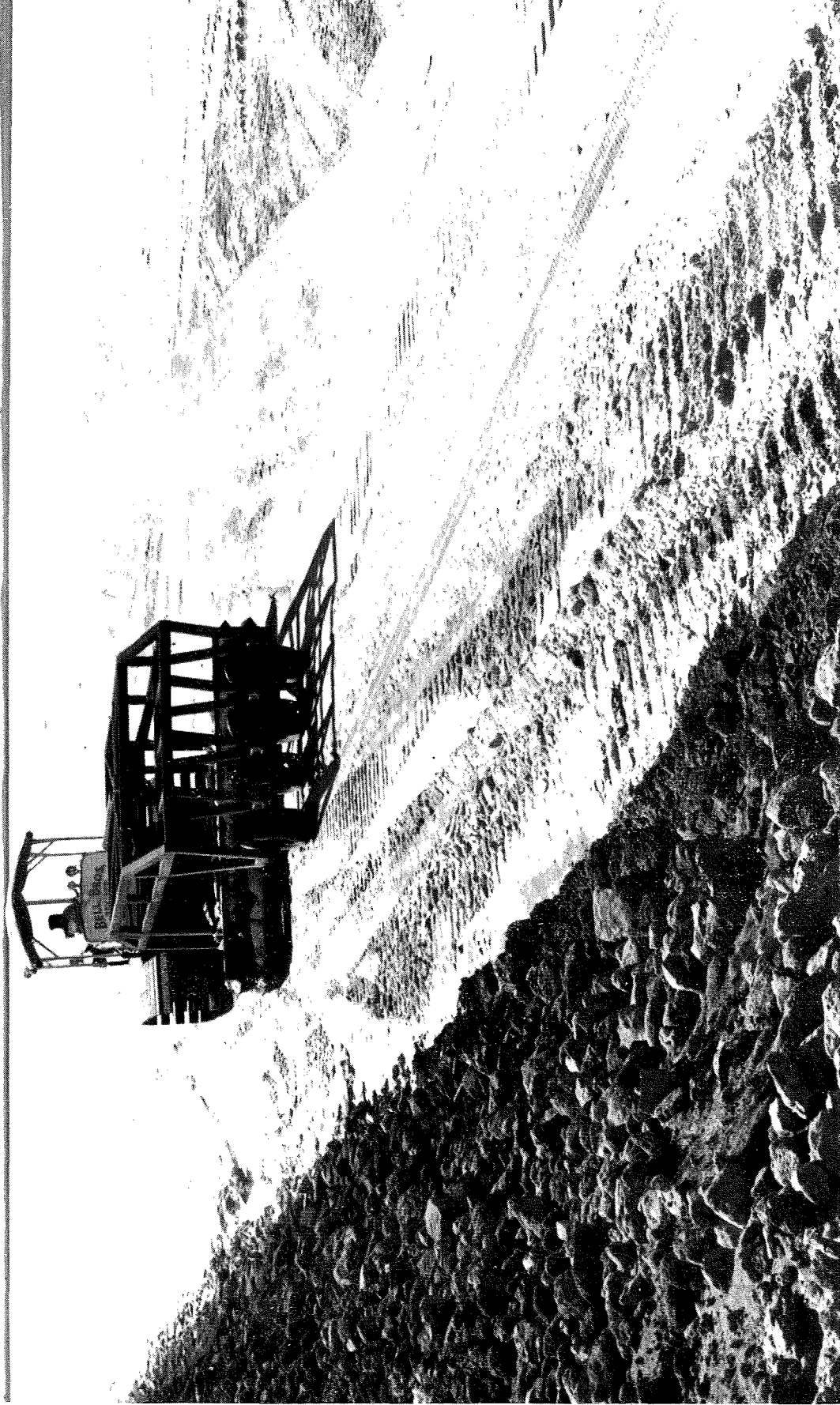
Photograph by courtesy of the Department of Development and Decentralisation

JOKKAS (*Setonix brachyurus*) AT ROTTNEST ISLAND



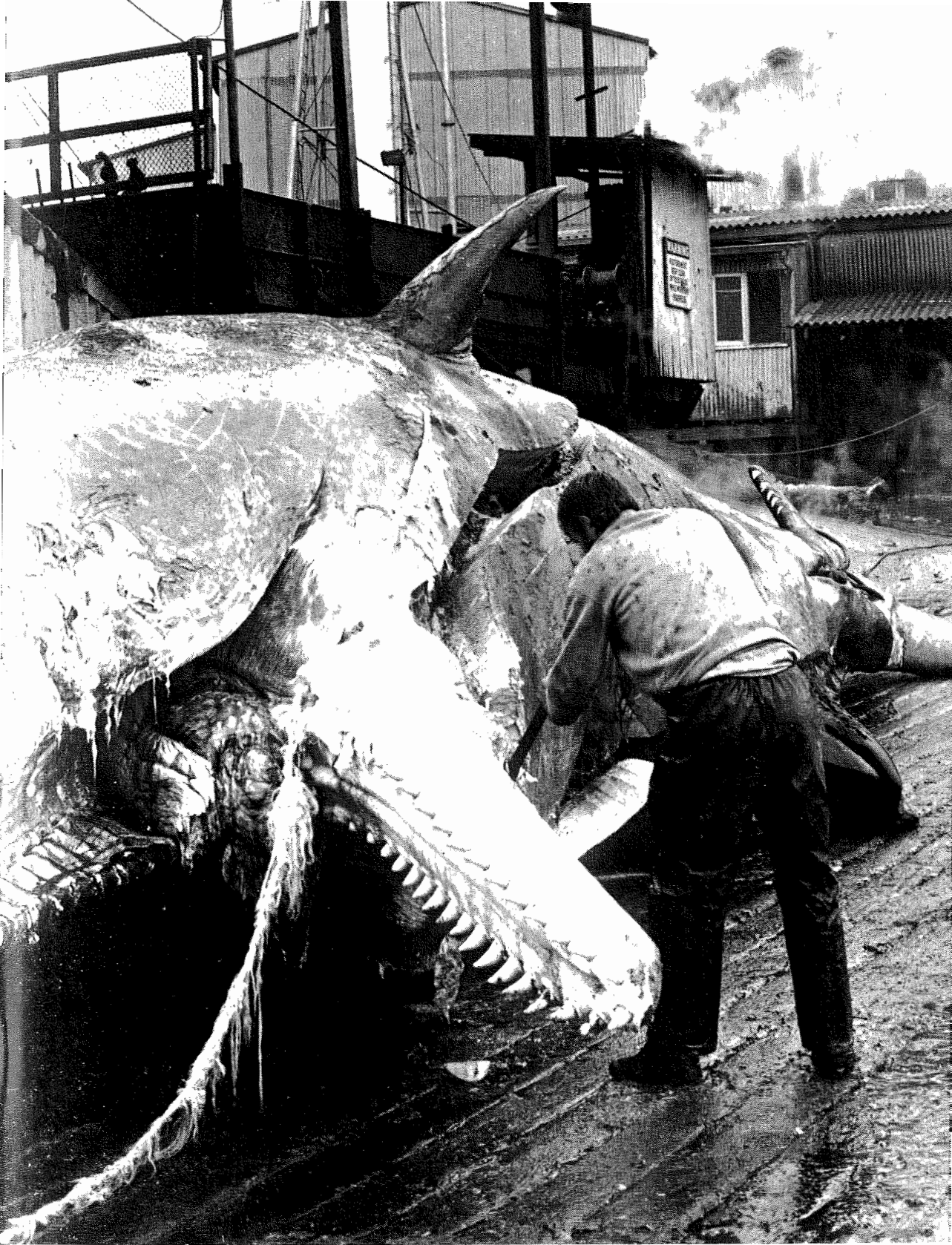
Photograph by courtesy of the Department of Development and Decentralisation

PLATE 7—TALC MINE NEAR THREE SPRINGS



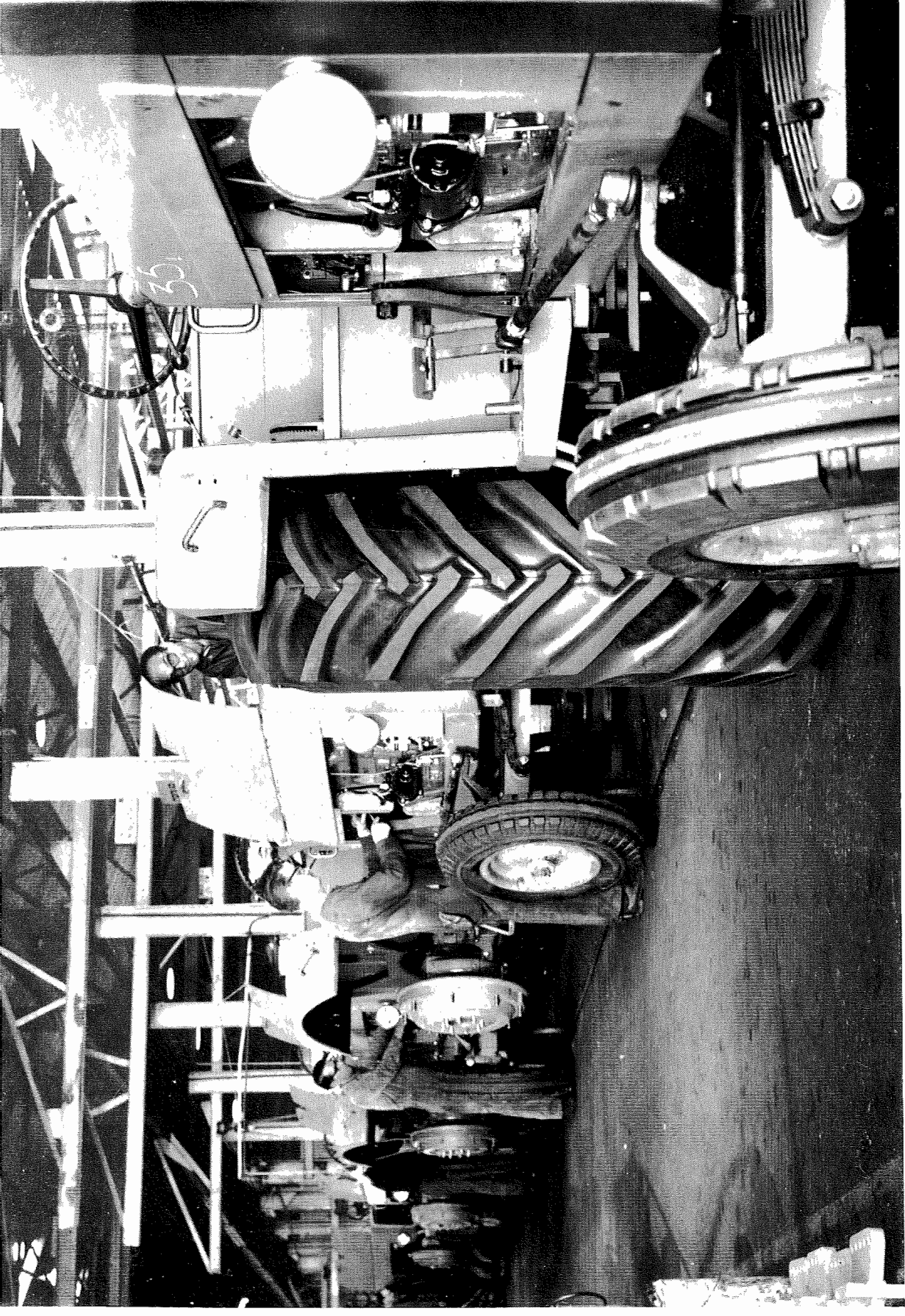
Photograph by courtesy of the Department of Development and Decentralisation

PLATE 8—SOLAR SALT INDUSTRY, PORT HEDLAND



*Photograph by courtesy of the Department of Development and Decentralisation*

PLATE 9—SPERM WHALE, FRENCHMAN BAY WHALING STATION NEAR ALBANY



Photograph by courtesy of the Department of Development and Decentralisation

PLATE 10.—TRACTOR ASSEMBLY LINE AT WELSHPOOL FACTORY NEAR PERTH



Photograph by courtesy of the Department of Development and Decentralisation

PLATE II—AERIAL VIEW OF EXPERIMENTAL FIELDS, KIMBERLEY RESEARCH STATION



Photograph by courtesy of L. E. and L. J. Stewart

**State Housing Death Benefit Scheme Act.** The *State Housing Death Benefit Scheme Act, 1965* establishes, with effect from 20 February 1965, a scheme to provide benefits for the families of purchasers of dwellings who die leaving unpaid the whole or part of a liability to the State Housing Commission under a contract of sale or mortgage. The benefit is applied to the credit of the deceased purchaser's account, and the instalments payable during the unexpired term of the loan are reduced accordingly.

From the inception of the scheme in 1965-66 to 30 June 1972, 187 claims have been admitted and a total of \$177,707 paid in the form of assistance to purchasers.

Additional details of the scheme are given on page 204 of the *Western Australian Year Book*, No. 8—1969 and in earlier issues.

### **Housing Loan Guarantee Act**

The purposes of the *Housing Loan Guarantee Act, 1957-1972* are to encourage, through provisions for guarantees and indemnities, the building and the purchasing of new houses. Under this Act, the Government provides guarantees to lenders of funds to building societies and other approved financial organisations making advances to persons desiring to purchase or build their own home on low deposits.

The maximum rate of interest which an approved institution may charge on a loan to a borrower is  $7\frac{1}{2}$  per cent (31 December 1972). Loans may be made up to 95 per cent of the value of the house and land or a specified sum, whichever is the lesser amount. In respect of the metropolitan region the maximum loan permitted is \$12,000, and outside the metropolitan region but south of the 26th parallel it is \$13,000. For a new house situated north of the 26th parallel and in the North-West or Eastern Land Divisions, the maximum loan is \$17,500 and in the Kimberley Land Division, \$20,000.

Complementary action has been taken by the Commonwealth in establishing the Housing Loans Insurance Corporation to foster high-ratio loans (see following section).

### **Housing Loans Insurance Scheme**

The Housing Loans Insurance Corporation was established by the *Housing Loans Insurance Act 1965* (Commonwealth) to insure approved lenders against losses arising from the making of housing loans. The Corporation consists of a chairman (who is also managing director) and a deputy chairman, who are full-time members, and three part-time members, all of whom are appointed by the Governor-General. The main purpose of the Corporation is to assist people to obtain, as a single loan and at a reasonable rate of interest, the money they need and can afford to borrow to obtain a home suited to their requirements.

For a loan to acquire a house or a home unit, the maximum amount insurable is \$40,000 and the maximum ratio of the loan amount to valuation of the property is 95 per cent. The maximum period of repayment for an insurable loan to acquire a house is forty years and for a loan to purchase a home unit, thirty-five years.

The Corporation charges a single premium at the outset of the loan. The premium rate depends on the ratio of the loan amount to property valuation—a premium of 1.5 per cent is charged where the loan represents 90 per cent or more of valuation but, for loans of less than 90 per cent of valuation, the premium rate reduces progressively to a minimum of 0.25 per cent for loans below a ratio of 70 per cent.

The Housing Loans Insurance Corporation insures loans that are made for a wide range of purposes in addition to the purchase or construction of a dwelling. The other purposes include alterations, extensions or improvements to a dwelling, and the provision of roads, kerbing and footpaths. Loans may only be insured for approved lenders who are appointed by the Corporation from within approved classes of lenders specified by the Minister for Housing. The approved classes include banks, permanent building societies, co-operative housing societies, friendly societies, life insurance companies, general insurance companies, mortgage management companies, trustee companies, and solicitors', super-annuation and provident funds. The Housing Loans Insurance Corporation commenced

its insurance operations in November 1965 and to 30 June 1972 had insured loans in Western Australia amounting to \$170 million (net).

**HOUSING LOANS INSURANCE CORPORATION  
LOANS INSURED IN WESTERN AUSTRALIA**

Purpose of loan	1967-68		1968-69		1969-70		1970-71		1971-72	
	Number	\$'000	Number	\$'000	Number	\$'000	Number	\$'000	Number	\$'000
Houses—										
For building a new house ....	162	1,828	334	4,181	513	7,000	813	10,760	1,203	16,216
For purchase of a new house ....	286	2,963	588	7,356	1,085	14,416	1,273	16,782	1,512	20,217
For purchase of a used house ....	281	2,658	448	5,033	728	9,433	954	11,823	1,661	20,740
For discharge of mortgage .....	17	199	13	141	48	649	80	953	151	1,798
Home units—										
For purchase of a new or used unit or discharge of mortgage ....	11	108	62	652	174	2,019	335	3,721	357	4,113
Other ....	15	184	38	482	59	542	76	433	104	590
Total ....	772	7,940	1,483	17,845	2,607	34,059	3,531	44,472	4,988	63,674

### Homes Savings Grants

The *Homes Savings Grant Act* 1964-1972 (Commonwealth), which came into operation on 28 May 1964, is designed to 'assist young married persons, and young widowed and divorced persons with dependent children, to purchase or build their own homes'. The Act is administered, subject to any directions of the Minister, by the Secretary to the Department of Housing.

The Act provides for the payment to eligible persons of a grant of \$1 for every \$3 saved for a home by one or both of the marriage partners. The grant takes the form of a gift free of tax and is payable in respect of a house, a home unit or a flat. The maximum benefit is \$750 payable on savings of \$2,250 which must be 'acceptable' savings within the meaning of the Act.

To qualify for the grant a person must be married or a widowed or divorced person with one or more dependent children; must have lived and saved in Australia for at least three years or was an Australian citizen throughout that period; must have entered into a contract to buy a home or to have a home built, or have begun to build a home; must be under thirty-six years of age at the date of marriage and at the date of entering into a contract to buy or build the home or at the date on which building began; must not have already received a grant and must not be, nor previously have been, married to a person who has received a grant during the marriage. An undischarged bankrupt or a person serving a term of imprisonment may not receive a grant.

The grant is not payable in respect of a home where the cost, including the cost of land, exceeds \$22,500.

Grants are financed from the National Welfare Fund and the first payments were made during the year ended 30 June 1965. Expenditure on grants in Western Australia amounted to \$690,999 in 1970-71 and \$1,114,999 in 1971-72.

### CONTROL OF BUILDING

Each of the local government authorities as constituted under the provisions of the *Local Government Act, 1960-1971* has power to exercise general control over the erection of buildings in its own district. The powers of local government authorities to control building derive from the Town Planning and Development Act and the Local Government Act.

The *Town Planning and Development Act, 1928-1972* gives local authorities the right to make by-laws covering such aspects of town planning as the purchase or reservation of land for thoroughfares, the density of dwelling accommodation per acre, the classification

of areas for residential, commercial, industrial and recreational use, the prescription of building standards, and the general planning of new subdivisions. Town planning measures proposed by a local authority are subject to the approval of the Minister for Town Planning, who has the advice of a Town Planning Commissioner and a Town Planning Board.

The *Local Government Act, 1960-1971* contains provisions for the control of building which are compatible with those exercised under the Town Planning and Development Act but are in a more detailed form. Many local government authorities have applied the Uniform Building By-laws, and the erection of all buildings must be carried out in compliance with these by-laws. The Local Government Act provides that no new building or the alteration of an existing building may be begun before the plans have been approved by the local authority. The Governor may by Order, at the request of a local authority, suspend the operation of this provision in its district. Generally, in remote parts of the State prior approval of plans is required only in the case of building in town-site areas. Where any local authority refuses to approve plans, the Act provides that an appeal may be made to the Minister for Local Government, who has the power to modify or reverse the decision of the local authority. The decision of the Minister is final and not subject to appeal. Other appeals or matters in dispute in relation to the control of building may be determined only by two referees, one of whom is appointed by the Governor and the other by the local authority concerned.

## BUILDING OPERATIONS

Since the end of the second World War, the Australian Statisticians have undertaken a quarterly collection of statistics of building operations. The first of these collections in Western Australia related to the quarter ended 30 September 1945.

Statistics of various series for Western Australia *ab initio* appeared in Part XII of the *Statistical Register of Western Australia* for 1965-66. Current data are given in the quarterly statement *Building Operations* and in the annual publication *Statistics of Western Australia—Building and Housing*.

VALUE OF NEW BUILDINGS COMPLETED: TYPE OF BUILDING (a)  
(\$'000)

Type of building	1967-68	1968-69	1969-70	1970-71	1971-72
<b>Houses—</b>					
Material of outer walls—					
Brick, brick veneer, concrete, stone .....	79,812	110,796	130,842	130,148	150,483
Wood (weatherboard, etc.) .....	115	69	355	1,684	267
Asbestos-cement .....	17,147	21,865	19,797	17,397	13,856
Other .....	295	546	307	442	2,129
<b>Total, Houses .....</b>	<b>97,370</b>	<b>133,276</b>	<b>151,300</b>	<b>149,671</b>	<b>166,736</b>
Flats .....	12,577	22,406	40,519	39,964	13,914
<b>Total, Houses and flats .....</b>	<b>109,947</b>	<b>155,682</b>	<b>191,819</b>	<b>189,636</b>	<b>180,650</b>
<b>Other new buildings—</b>					
Hotels, hostels, etc. ....	8,759	11,417	14,815	17,054	13,237
Shops .....	5,079	4,052	7,501	11,270	16,833
Factories .....	15,061	15,845	16,615	18,006	21,336
Office premises .....	14,608	10,885	14,294	39,736	19,360
Other business premises .....	6,809	12,574	15,968	18,816	14,591
Education .....	12,051	14,122	13,297	20,589	16,325
Religion .....	683	1,644	995	1,145	1,152
Health .....	3,436	7,373	5,949	17,527	17,250
Entertainment and recreation .....	3,670	3,848	6,033	6,750	6,385
Miscellaneous .....	15,299	17,391	16,110	24,485	24,322
<b>Total, Other new buildings .....</b>	<b>85,456</b>	<b>99,152</b>	<b>111,577</b>	<b>175,377</b>	<b>150,790</b>
<b>TOTAL, ALL NEW BUILDINGS .....</b>	<b>195,403</b>	<b>254,833</b>	<b>303,397</b>	<b>365,012</b>	<b>331,440</b>

(a) See letterpress on page 228.

The survey covers the activities of building contractors who undertake the construction of new buildings; the building operations of Commonwealth, State, semi-government and local government authorities; and work performed by owner-builders.

The statistics in this section relate only to the erection of buildings as distinct from the construction of railways, bridges, earthworks, etc.

In the previous table the value of new buildings completed, classified according to the function each building is intended to serve, is shown for the period 1967-68 to 1971-72. The values shown for each type of building exclude the value of land and represent the estimated value of the buildings on completion.

The following table shows the number of new houses and flats completed, according to ownership, in each of the five years 1967-68 to 1971-72. A building is classified as 'private' or 'government' according to ownership at date of commencement. Thus 'government' includes buildings erected for Commonwealth and State Governments, semi-government and local government authorities, either by contractors or by day labour, whether these buildings are for their own use or for rental or sale after completion. Houses erected for private ownership, or which are financed or supervised by government authorities but erected for particular persons, are classified as 'private'.

#### NUMBER OF NEW HOUSES AND FLATS COMPLETED ACCORDING TO OWNERSHIP

Year	Private ownership (a)			Government ownership (a)			Total		
	Houses	Flats	Houses and flats	Houses	Flats	Houses and flats	Houses	Flats	Houses and flats
1967-68 ....	8,533	2,382	10,915	1,325	10	1,335	9,858	2,392	12,250
1968-69 ....	11,007	3,337	14,344	1,833	154	1,987	12,840	3,491	16,331
1969-70 ....	12,384	4,915	17,299	1,549	681	2,230	13,933	5,596	19,529
1970-71 ....	9,648	3,608	13,256	2,273	1,405	3,678	11,921	5,013	16,934
1971-72 ....	11,167	992	12,159	2,120	603	2,723	13,287	1,595	14,882

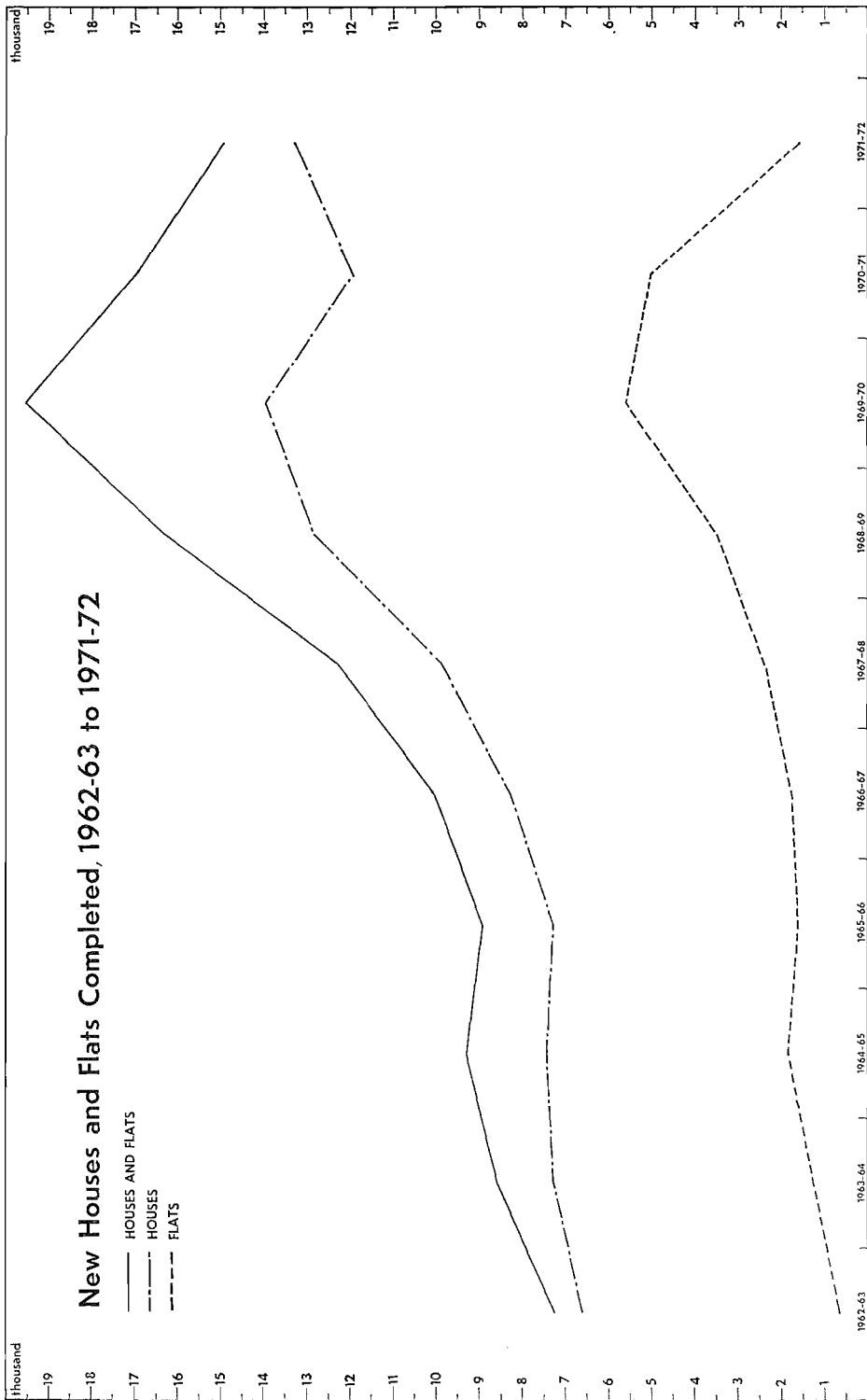
(a) See letterpress preceding table.

As an indication of the distribution of building activity throughout the State, the number of new houses completed in each Statistical Division during 1967-68 to 1971-72 is shown in the next table.

#### NUMBER OF NEW HOUSES COMPLETED IN STATISTICAL DIVISIONS

Statistical Division				1967-68	1968-69	1969-70	1970-71	1971-72
Perth Statistical Division	....	....	....	6,812	9,246	10,463	7,805	9,670
Other Divisions—								
South-West	....	....	....	820	834	973	948	1,032
Southern Agricultural	....	....	....	359	384	365	314	196
Central Agricultural	....	....	....	367	407	331	179	148
Northern Agricultural	....	....	....	513	659	637	500	455
Eastern Goldfields	....	....	....	382	489	486	467	356
Central	....	....	....	11	14	16	296	15
North-West	....	....	....	110	61	146	174	290
Pilbara	....	....	....	423	623	416	1,152	1,070
Kimberley	....	....	....	61	123	100	86	55
Total	....	....	....	3,046	3,594	3,470	4,116	3,617
WESTERN AUSTRALIA	....	....	....	9,858	12,840	13,933	11,921	13,287

A further measure of building activity is that of 'value of work done' which is the estimated value of work actually carried out on buildings during the period. For any building, the sum of these values obtained during its construction equals the value of the building on completion. The figures in the following table include estimates for the value of work done on owner-built houses.



**VALUE OF WORK DONE ON NEW BUILDINGS**  
(£'000)

Type of building	1967-68	1968-69	1969-70	1970-71	1971-72
<b>Houses and flats—</b>					
Houses ....	105,991	137,168	154,761	150,653	157,798
Flats ....	15,328	29,219	44,783	28,302	11,022
<b>Total, Houses and flats</b> ....	<b>121,319</b>	<b>166,386</b>	<b>199,545</b>	<b>178,955</b>	<b>168,819</b>
<b>Other new buildings—</b>					
Hotels, hostels, etc. ....	11,620	10,425	16,574	16,241	18,711
Shops ....	4,750	5,234	8,434	14,700	22,686
Factories ....	16,593	15,334	16,052	19,400	21,419
Office premises ....	13,246	15,111	26,692	31,480	23,442
Other business premises ....	8,598	13,499	18,937	18,905	16,049
Education ....	13,494	12,436	15,829	20,626	19,325
Religion ....	981	1,255	1,068	1,041	1,216
Health ....	5,897	7,871	12,937	13,975	11,444
Entertainment and recreation ....	3,904	4,463	6,539	7,455	7,293
Miscellaneous ....	12,034	17,994	20,336	24,243	19,406
<b>Total, Other new buildings</b> ....	<b>91,118</b>	<b>103,625</b>	<b>143,398</b>	<b>168,067</b>	<b>160,992</b>
<b>TOTAL, ALL NEW BUILDINGS</b> ....	<b>212,437</b>	<b>270,012</b>	<b>342,943</b>	<b>347,022</b>	<b>329,811</b>

### Employment in Building

Details of building employment are given in the following table. The figures shown relate to persons working on the jobs of contractors who undertake the erection of new buildings and on the jobs of government authorities which erect new buildings on their own account. They include persons actually engaged on alterations, additions, repairs, and maintenance when these jobs are undertaken by such contractors and authorities. The figures also include the number of persons working on new private buildings (other than houses) erected without the services of a contractor responsible for the whole job.

Informants are asked to supply details of all persons employed on their jobs *on a specified day*, including working principals, men working as or for sub-contractors, and men temporarily laid off on account of weather. Because of the intermittent employment of various types of sub-contractors on any particular job, it is sometimes difficult for informants to provide precise particulars of the number of sub-contractors and sub-contractor employees working on their jobs on the specified day. This factor may cause some understatement in the figures shown in the table. In other cases, because of frequent movement between jobs of some types of tradesmen (such as electricians) who may work on several jobs on the one day, some duplication may occur.

The figures *exclude* persons working on owner-built houses, and employees of building firms which undertake only alterations, additions, repairs, and maintenance.

### EMPLOYMENT IN BUILDING (a)

Classification	End of June—				
	1968	1969	1970	1971	1972
<b>Occupational status—</b>					
Contractors ....	697	697	673	646	590
Sub-contractors....	2,882	3,731	3,132	3,181	3,213
Wage earners ....	13,233	14,773	15,788	13,965	11,694
<b>Total</b> ....	<b>16,812</b>	<b>19,201</b>	<b>19,593</b>	<b>17,792</b>	<b>15,497</b>
<b>Occupation—</b>					
Carpenters ....	4,569	5,007	5,114	4,327	3,623
Bricklayers ....	2,469	2,954	2,463	2,365	2,258
Painters ....	1,494	1,723	1,611	1,476	1,395
Electricians ....	1,126	1,373	1,364	1,235	1,165
Plumbers ....	1,577	1,711	1,695	1,579	1,446
Builders' labourers ....	2,602	2,978	3,171	2,433	2,208
Other ....	2,975	3,455	4,175	4,377	3,402
<b>Total</b> ....	<b>16,812</b>	<b>19,201</b>	<b>19,593</b>	<b>17,792</b>	<b>15,497</b>

(a) See letterpress preceding table.

## DWELLINGS COMPLETED IN AUSTRALIA

The following table shows the numbers of new houses and flats completed in each of the Australian States and Territories during the year 1971-72. In Western Australia the number of new houses and flats completed per thousand of mean population was 14.22, compared with 10.79 in the rest of Australia and 11.07 in Australia as a whole.

NEW HOUSES AND FLATS COMPLETED—AUSTRALIAN STATES AND TERRITORIES  
1971-72

State or Territory	Houses	Flats (a)	Houses and flats (a)		
			Total number completed	Proportion of Australian total (per cent)	Per thousand of mean population
New South Wales ....	30,031	17,989	48,020	33.64	10.33
Victoria ....	25,627	10,091	35,718	25.02	10.10
Queensland ....	17,476	4,495	21,971	15.39	11.87
South Australia ....	9,061	4,184	13,245	9.28	11.19
Western Australia ....	13,287	1,595	14,882	10.42	14.22
Tasmania ....	2,261	767	3,028	2.12	7.72
Northern Territory ....	1,491	488	1,979	1.39	22.33
Australian Capital Territory ....	3,719	192	3,911	2.74	25.86
<b>AUSTRALIA ....</b>	<b>102,953</b>	<b>39,801</b>	<b>142,754</b>	<b>100.00</b>	<b>11.07</b>

(a) Individual living units.

## *Chapter V—continued*

### **Part 5—Social Benefits, Pensions and Welfare Services**

**NOTE.** The rates and the conditions applying to payment of the several benefits dealt with in this Part are described as they existed at 1 January 1973. The rates of benefit being paid at 1 January of each of the years 1969 to 1973 are summarised in a table appearing at the end of each of the relevant sections. Variations made subsequent to 1 January 1973 are shown in the *Appendix*.

The information given in this Part is intended to serve as a general guide to the main provisions relating to social benefits and relief payments provided by the Commonwealth and State Governments. For more complete details of the Commonwealth benefits, reference should be made to the *Official Year Book of the Commonwealth of Australia*.

---

Social benefits are provided by the Commonwealth Government under a series of Acts, and their payment is financed from a National Welfare Fund. Payments from the fund are made in respect of benefits only, and do not include the cost of administering the benefits nor of capital works associated with them. The fund receives each year by transfer from the Consolidated Revenue Fund an amount equal to the payments made. Other income of the National Welfare Fund is derived from interest on investments.

War and service pensions are paid by the Commonwealth Government from the Consolidated Revenue Fund.

The *Social Services Act* 1947-1972 provides for the payment of age and invalid pensions, widows' pensions, unemployment, sickness, and special benefits, maternity allowances and child endowment; the *Repatriation Act* 1920-1972, for war pensions and service pensions; and the *Tuberculosis Act* 1948, for allowances to sufferers from tuberculosis as well as assistance to the States in a national campaign against the disease.

Health services, such as medical, hospital and pharmaceutical benefits, are provided under the *National Health Act* 1953-1972.

War pensions, child endowment, maternity allowances and health service benefits, other than tuberculosis allowances, are paid regardless of income received from other sources or of property owned by the claimant. These payments do not affect eligibility for other social services benefits.

Age and invalid pensions (other than pensions paid to blind persons), widows' pensions and service pensions are subject to a means test in respect of both income and property. Only income is taken into account in assessing eligibility for unemployment and sickness benefits or tuberculosis allowances. Generally, a person receiving a pension or an allowance under one category is ineligible for benefit under any other.

Child endowment is payable in respect of all children under sixteen years of age and all 'student children'. A 'student child' is one who has attained the age of sixteen years but is under the age of twenty-one years; is receiving full-time education at a school, college or university; and is not in employment or engaged in work on his own account. Payments in respect of 'student children' apply also to certain other benefits provided in terms of the *Social Services Act*, the *Repatriation Act* and the *Tuberculosis Act*.

The State Government makes certain payments for the relief of women and others in necessitous circumstances which in most cases supplement benefits provided by the Commonwealth Government.

## SOCIAL SERVICES BENEFITS

## Age and Invalid Pensions

Age pensions were first paid on 1 July 1909 and invalid pensions on 15 December 1910. Pensions are payable subject to a means test which does not, however, apply to pensions paid to persons who are permanently blind.

The age pension is payable to men aged sixty-five years and over and to women aged sixty years and over who have resided in Australia continuously for at least ten years, which need not be immediately prior to the date of claim for a pension. If a person has not completed ten years' continuous residence but has been so resident for a period of not less than five years, the period of ten years' continuous residence otherwise required is reduced by the total of his periods of residence in excess of ten years. Residence in New Zealand or the United Kingdom may be treated as residence in Australia. Certain absences do not affect eligibility.

Invalid pensions are payable to persons aged sixteen years and over who have resided in Australia for a continuous period of not less than five years (including certain absences), and are permanently incapacitated for work to the extent of at least 85 per cent or are permanently blind. If the incapacity or blindness first occurred outside Australia, except during a temporary absence, a period of not less than ten years' continuous residence is necessary. If a person has not completed ten years' continuous residence but has been so resident for a period of not less than five years, the period of ten years' continuous residence otherwise required is reduced by the total of his periods of residence in excess of ten years. Residence in New Zealand or the United Kingdom may be treated as residence in Australia. Certain absences do not affect eligibility.

## AGE AND INVALID PENSIONS (a)—WESTERN AUSTRALIA

Particulars										1967-68	1968-69	1969-70	1970-71	1971-72
Number of pensioners at 30 June—														
Age—														
Males	....	....	....	....	....	....	....	....	....	14,724	15,257	17,329	18,071	18,930
Females	....	....	....	....	....	....	....	....	....	34,126	35,175	38,688	40,153	41,593
Persons										48,850	50,432	56,017	58,224	60,523
Invalid—														
Males	....	....	....	....	....	....	....	....	....	4,682	4,746	4,453	4,499	4,704
Females	....	....	....	....	....	....	....	....	....	3,628	3,667	3,480	3,656	3,781
Persons										8,310	8,413	7,933	8,155	8,485
Average weekly pension at 30 June (b)—										\$	\$	\$	\$	\$
Age										12.09	12.85	13.55	14.29	16.30
Invalid										13.36	14.67	15.76	16.57	19.02
Amount paid during year (c)										\$'000	\$'000	\$'000	\$'000	\$'000
										36,423	39,441	44,711	49,053	57,470

(a) Includes particulars of sheltered employment allowances (see pages 208-9). (b) Includes allowances and supplementary assistance. (c) Includes amounts paid to benevolent homes for maintenance of pensioners and to pensioner inmates of these homes. Includes also allowances and supplementary assistance.

Age and invalid pensions are reducible by the application of a means test in respect of income and property which, for the purposes of assessment, excludes the pensioner's home, furniture, car, personal effects and some other specified assets.

The maximum rate of pension payable to an unmarried person (*i.e.* single, widowed or divorced) is \$20 per week. This rate applies also to a married pensioner where the spouse is not receiving an age or invalid pension, a tuberculosis allowance or a service pension. It may also be paid to each of a pensioner couple living apart for an indefinite period because of the illness or infirmity of either or both. In the case of a married couple, both of whom are pensioners and who are living together, the maximum weekly rate is \$17.25 for each pensioner. A wife's pension, subject to a means test, may be paid to a woman aged less than sixty years if she is the wife of an age or invalid pensioner and is living with him. The maximum weekly rate of a wife's pension is \$17.25.

Age and invalid pensions may be increased by \$4.50 per week, subject to the means test, for each child under sixteen years of age. These allowances apply also to student children of a pensioner. A guardian's allowance is payable to widowed and other unmarried age or invalid pensioners who have one or more children in their care. The maximum weekly rate of the allowance is \$4, which may be increased to \$6 where the pensioner has the custody, care and control of a child (or children) under six years of age or an invalid child (or children) requiring full-time care and attention.

A pensioner who pays rent and is entirely or substantially dependent on the pension may receive supplementary assistance subject to a means test. The maximum weekly rate of this assistance is \$4 for an unmarried pensioner and \$2 for each of a married pensioner couple.

**Rehabilitation Service.** Since 10 December 1948 a rehabilitation service has been provided for invalid pensioners and others whose disabilities are remediable and who have reasonable prospects of engaging in a suitable vocation within three years. With the aim of restoring disabled persons to independence and usefulness, the service provides the necessary treatment and training together with books, tools and equipment. Rehabilitation and training allowances are paid.

The *Social Services Act* 1968, operative from 27 September 1968, provides for a scheme of vocational training for Class 'A' and Class 'B' widow pensioners (see letterpress *Widows' Pensions* below). In addition to her pension, a trainee receives a training allowance of \$4 per week and, where appropriate, a living-away-from-home allowance not exceeding \$5 per week. Tuition fees and fares to and from the place of training are paid for under the scheme, and books and other necessary equipment are provided.

**Funeral Benefit.** From 1 July 1943, a funeral benefit of up to \$20 has been payable to persons who are required to meet the funeral expenses of an age or invalid pensioner. This benefit is increased to a maximum of \$40 where a person receiving an age or invalid pension, a wife's pension or a widow's pension is required to meet the funeral expenses of another pensioner or those of a non-pensioner spouse or dependent child.

### Widows' Pensions

Widows' pensions have been paid since 30 June 1942 and are granted subject to a means test and certain residential qualifications. The term 'widow' is extended to include deserted wives, divorcees and women who have been deprived of support by the insanity or imprisonment of the husband.

Pensions and allowances payable to widows vary according to classes designated 'A', 'B' and 'C' in terms of the *Social Services Act*. To qualify for pension under Class 'A' a widow must have the custody, care and control of one or more children who may be either less than sixteen years of age or student children as defined in the Act. The maximum rate of pension is \$24 per week, including a mother's allowance of \$4 per week. An additional allowance of \$4.50 per week is payable in respect of each child. The mother's allowance may be increased to \$6 per week where the pensioner has the custody, care and control of a child (or children) under six years of age, or an invalid child (or children) requiring full-time care and attention. A class 'B' pensioner is one who has not the custody, care and control of any child under sixteen years of age (or any student child) and who is at least fifty years of age, or is not less than forty-five years of age when her Class 'A' pension ceases because she no longer has a child in her custody, care and control. The maximum rate of pension payable is \$17.25 per week. A Class 'C' pensioner is a widow who, at the time of her husband's death or within twenty-six weeks thereafter, is less than fifty years of age, has not the custody, care and control of any child under sixteen years of age (or any student child), and is in necessitous circumstances. Pension at the rate of \$17.25 per week may be paid for a period of twenty-six weeks immediately after the husband's death but, if the widow is pregnant, may be continued until the birth of the child, when she may qualify for a Class 'A' pension.

A widow pensioner who pays rent and is considered to be entirely or substantially dependent on her pension may, subject to a means test, receive supplementary assistance up to a maximum of \$4 per week.

The rate of pension is reducible by the application of a means test in respect of income and property which, for the purposes of assessment, excludes the pensioner's home, furniture, car, personal effects and some other specified assets.

#### WIDOWS' PENSIONS—WESTERN AUSTRALIA

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
Number of pensions current at 30 June—					
Class 'A' pensioners (a) ....	2,520	2,579	2,903	3,050	3,368
Class 'B' pensioners (b) ....	2,950	2,972	3,178	3,328	3,417
Class 'C' pensioners (c) ....	12	8	5	14	10
Total ....	5,482	5,559	6,086	6,392	6,795
Average weekly pension at 30 June (d) ....	\$ 15·33	\$ 16·98	\$ 18·41	\$ 19·03	\$ 22·44
Amount paid during year (d) ....	\$'000 4,346	\$'000 4,786	\$'000 5,600	\$'000 6,172	\$'000 7,180

(a) Widow having custody, care and control of one or more children aged less than 16 years, or of a student child or children.  
 (b) Widow aged 50 years or over with no dependent children. (c) Widow, other than Class 'A' or 'B', in necessitous circumstances following death of husband. (d) Includes allowances and supplementary assistance.

#### Unemployment, Sickness and Special Benefits

Payments to persons unemployed or temporarily incapacitated for work by sickness or accident were introduced on 1 July 1945 and are subject to residential qualifications and a means test in respect of income but not of property. For unemployment benefit purposes, the incomes of both husband and wife are taken into account. For sickness benefit purposes, any payment received on account of the sickness from an approved friendly society or similar body is disregarded. Benefits are payable to males over sixteen and under sixty-five years of age and to females over sixteen and under sixty years of age. There is a waiting period of seven days before benefits are paid, but this waiting period is not required to be served more than once in any period of thirteen weeks.

The maximum weekly rate of benefit for an unmarried person over twenty-one years of age is \$17 per week. For unmarried minors, the rate is \$7·50 for those aged under eighteen years and \$11 for those aged eighteen and under twenty-one years. A minor with no parent living in Australia may qualify for a benefit of \$17 per week. A married person with dependent spouse may receive \$25 per week, with an additional \$4·50 per week for each dependent child under sixteen years of age.

The rate of sickness benefit may be increased after six consecutive weekly payments, except in cases where the beneficiary is in hospital and has no dependants. The maximum weekly rate of benefit for an unmarried person over twenty-one years of age is \$20. For an unmarried minor the rate is \$13. A minor with no parent living in Australia may qualify for a benefit of \$20 per week. A married person with dependent spouse may receive \$28 per week, with an additional \$4·50 per week for each dependent child under sixteen years of age. A supplementary allowance up to a maximum of \$4 per week may be paid to a person receiving the long-term rate of sickness benefit if the beneficiary pays rent and is entirely or substantially dependent on the benefit.

A married woman is not eligible to receive a sickness benefit if it is reasonably possible for her husband to maintain her. Where her husband is able to maintain her only partially a benefit may be paid at such rate as is considered reasonable in the circumstances.

Special benefits have been provided since 1 July 1945. A special benefit may be granted to a person not qualified for unemployment or sickness benefit and who receives no Commonwealth pension if, on account of age, physical or mental disability or for any other reason, he is unable to earn a sufficient livelihood for himself and his dependants. Special benefits are also paid to migrants who are in accommodation centres and are

awaiting their first placement in employment. The maximum rate for special benefit is the same as for unemployment benefit.

#### UNEMPLOYMENT, SICKNESS AND SPECIAL BENEFITS—WESTERN AUSTRALIA

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
<b>Unemployment benefit—</b>					
Number admitted to benefit during year ....	6,686	6,521	6,362	12,718	33,359
Average number on benefit at end of each week ....	608	524	474	872	2,808
Number on benefit at end of year—					
Males ....	391	226	598	1,262	4,836
Females ....	355	243	205	342	987
Persons ....	746	469	803	1,604	5,823
<b>Sickness benefit—</b>					
Number admitted to benefit during year ....	5,796	5,057	5,358	5,775	7,028
Average number on benefit at end of each week ....	677	525	492	547	761
Number on benefit at end of year—					
Males ....	463	401	400	440	738
Females ....	176	84	119	170	217
Persons ....	639	485	519	610	955
<b>Special benefit (a)—</b>					
Number admitted to benefit during year ....	133	805	817	1,027	942
Average number on benefit at end of each week ....	72	230	231	278	268
Number on benefit at end of year—					
Males ....	14	19	23	15	27
Females ....	96	230	228	223	252
Persons ....	110	249	251	238	279
<b>Benefits paid during year—</b>	\$'000	\$'000	\$'000	\$'000	\$'000
Unemployment ....	304	309	407	828	2,945
Sickness ....	420	389	508	719	1,159
Special (a) ....	33	97	123	151	194
<b>Total (a) ....</b>	<b>757</b>	<b>795</b>	<b>1,039</b>	<b>1,699</b>	<b>4,297</b>

(a) Excludes special benefits to migrants in accommodation centres.

#### Maternity Allowances

Maternity allowance payments were introduced on 10 October 1912. The allowance is payable to a woman who, at the date of giving birth to a child (live or stillborn), is residing in Australia. There is no means test.

#### MATERNITY ALLOWANCES—WESTERN AUSTRALIA

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
<b>Number of claims paid—</b>					
<b>Single births: amount of allowance—</b>					
\$30 ....	6,909	7,770	7,682	9,190	9,152
\$32 ....	8,723	9,296	9,432	10,828	10,585
\$35 ....	3,149	3,083	2,990	3,179	2,882
<b>Multiple births: amount of allowance—</b>					
<b>Twins—</b>					
\$40 ....	65	77	63	66	64
\$42 ....	73	94	90	103	117
\$45 ....	48	59	37	50	39
<b>Triplets—</b>					
\$50 ....	....	....	....	....	....
\$52 ....	2	1	....	1	2
\$55 ....	....	1	....	....	1
<b>Total number of claims paid ....</b>	<b>18,969</b>	<b>20,381</b>	<b>20,294</b>	<b>23,417</b>	<b>22,842</b>
<b>Amount paid ....</b>	<b>\$'000 605</b>	<b>\$'000 648</b>	<b>\$'000 645</b>	<b>\$'000 743</b>	<b>\$'000 724</b>

The allowance is \$30 where there are no other children under sixteen years of age, \$32 where the mother has one or two other children under sixteen years of age, or \$35 where she has three or more other such children. The amount payable is increased by \$10 for each additional child of a multiple birth.

#### Child Endowment

Child endowment was introduced on 1 July 1941. The payment of endowment is not subject to a means test. A person who is resident in Australia and has the custody,

care and control of one or more children under the age of sixteen years, or of a student child or children, is qualified to receive endowment in respect of each child. Approved institutions of which children are inmates are similarly entitled.

At the inception of the scheme, the first child of a family was not endowed. From 20 June 1950 child endowment has applied in respect of the first or only child of a family at the rate of fifty cents per week. Endowment for the second child is at the rate of \$1 per week, and for the third child, \$2 per week. For each subsequent child the endowment increases progressively by twenty-five cents, so that the weekly rate payable for the fourth child is \$2.25, for the fifth child \$2.50, and so on. Endowment is payable to a person having the custody, care and control of a student child (or children) aged sixteen years but under twenty-one years who is receiving full-time education at a school, college or university and is not in employment or engaged in work on his own account. Endowment is at the rate of \$1.50 per week for each such child.

An approved institution is qualified to receive \$1.50 per week in respect of each student child and \$2 per week for each other child in its care.

A summary of the principal statistics relating to child endowment in the five years ended 30 June 1972 is given in the following table.

#### CHILD ENDOWMENT—WESTERN AUSTRALIA

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
Endowed families at 30 June—					
Number of claims in force in respect of—					
Children under 16 years of age ....	130,389	136,454	140,719	147,507	153,600
Student children ....	10,106	10,486	10,495	12,316	14,039
Number of endowed children—					
Children under 16 years of age ....	302,516	313,857	317,904	329,671	338,855
Student children ....	10,870	11,290	11,367	13,449	15,390
Average number of endowed children per claim—					
Children under 16 years of age ....	2.32	2.30	2.26	2.24	2.21
Student children ....	1.08	1.09	1.08	1.09	1.10
Approved institutions at 30 June—					
Number of endowed child inmates—					
Children under 16 years of age ....	3,976	4,290	4,154	4,177	4,600
Student children ....	129	156	172	288	62
Total number of endowed children at 30 June—					
In families ....	313,386	325,147	329,271	343,120	354,245
In institutions ....	4,105	4,446	4,326	4,465	4,662
Total ....	317,491	329,593	333,597	347,585	358,907
Amount paid during year (a) (b) ....	\$'000 14,845	\$'000 15,540	\$'000 (c) 17,894	\$'000 16,423	\$'000 18,188

(a) Includes payments to institutions. (b) A number of endowments are paid every 12 weeks. During two years in every three, there are four such payments each year, and five in the third year. (c) Expenditure in this year includes five 12-weekly payments; see footnote (b).

#### Reciprocal Arrangements with other Countries

Reciprocal arrangements in respect of payment of age and invalid pensions, widows' pensions, unemployment and sickness benefits and child endowment have been in force between the Governments of Australia and New Zealand since 1 July 1949 and between Australia and the United Kingdom since 7 January 1954. The *Social Services Act (No. 3) 1972*, which came into operation on 7 June 1972, provides that, subject to certain conditions, payment of a pension may also continue if a pensioner leaves Australia for the purpose of residing in one of a number of other countries with which appropriate reciprocal arrangements have been made.

#### Summary of Rates, 1969 to 1973

The following table shows the maximum weekly rates being paid at 1 January of the years 1969 to 1973 in respect of age, invalid and widows' pensions, unemployment and sickness benefits, and child endowment. The rates applying to certain allowances and other forms of assistance are also shown.

## SOCIAL SERVICE PAYMENTS—MAXIMUM WEEKLY RATES

(\$)

Pension, allowance or benefit	At 1 January—				
	1969	1970	1971	1972	1973
Age and invalid pensions (a)—					
Unmarried person .....	14·00	15·00	15·50	17·25	20·00
Married couple—					
Where both eligible and living together .....	25·00	26·50	27·50	30·50	34·50
Where both eligible but living apart for an indefinite period due to ill health .....	25·00	26·50	31·00	34·50	40·00
Where husband eligible—					
Husband's pension .....	14·00	15·00	15·50	17·25	17·25
Wife's allowance (b) .....	7·00	7·00	7·00	8·00	....
Wife's pension (b) .....	....	....	....	....	17·25
Where wife eligible .....	14·00	15·00	15·50	17·25	20·00
Payments in respect of dependent children (c) (d)—					
First child under 16 years of age .....	2·50	2·50	2·50	4·50	4·50
Each other child under 16 years of age .....	2·50	3·50	3·50	4·50	4·50
Guardian's allowance—					
Where there is a child aged under 6 years or an invalid child requiring full-time care .....	4·00	6·00	6·00	6·00	6·00
Other cases .....	4·00	4·00	4·00	4·00	4·00
Widows' pensions—					
Class A (widow with dependent child or children) .....	14·00	15·00	15·50	17·25	20·00
Mother's allowance—					
Where there is a child aged under 6 years or an invalid child requiring full-time care .....	4·00	6·00	6·00	6·00	6·00
Other cases .....	4·00	4·00	4·00	4·00	4·00
Payments in respect of dependent children (c) (d)—					
First child under 16 years of age .....	2·50	2·50	2·50	4·50	4·50
Each other child under 16 years of age .....	2·50	3·50	3·50	4·50	4·50
Class B (widow aged 50 years or more) .....	12·50	13·25	13·75	15·25	17·25
Class C (widow under 50 years of age in necessitous circumstances) .....	12·50	13·25	13·75	15·25	17·25
Supplementary assistance .....	2·00	2·00	2·00	2·00	4·00
Unemployment and sickness benefits—					
Unemployment benefit and short-term sickness benefit—					
Unmarried person—					
Aged 16 and under 18 years .....	3·50	4·50	4·50	4·50	7·50
Aged 18 and under 21 years .....	4·75	6·00	6·00	6·00	11·00
Aged 21 years or more .....	8·25	(e) 10·00	(e) 10·00	(e) 10·00	(e) 17·00
Married person .....	8·25	10·00	10·00	10·00	17·00
Dependent spouse .....	6·00	7·00	7·00	8·00	8·00
Payments in respect of dependent children (c) (d)—					
First child under 16 years of age .....	1·50	2·50	2·50	4·50	4·50
Each other child under 16 years of age .....	1·50	3·50	3·50	4·50	4·50
Long-term sickness benefit (f)—					
Unmarried person—					
Aged 16 and under 21 years .....	....	....	10·00	11·25	13·00
Aged 21 years or more .....	....	....	(e) 15·50	(e) 17·25	(e) 20·00
Married person .....	....	....	15·50	17·25	20·00
Dependent spouse .....	....	....	7·00	8·00	8·00
Payments in respect of dependent children (b) (c)—					
First child under 16 years of age .....	....	....	2·50	4·50	4·50
Each other child under 16 years of age .....	....	....	3·50	4·50	4·50
Supplementary allowance .....	....	....	2·00	2·00	4·00
Child endowment—					
Children under 16 years of age—					
First child .....	0·50	0·50	0·50	0·50	0·50
Second child .....	1·00	1·00	1·00	1·00	1·00
Third child .....	1·50	1·50	1·50	2·00	2·00
Fourth and each subsequent child .....	(g)	(g)	(g)	(g)	(g)
Student child aged 16 and under 21 years .....	1·50	1·50	1·50	1·50	1·50

(a) The rates shown apply also to the recipient of a sheltered employment allowance (see pages 208–9). (b) Under the provisions of the *Social Services Act* (No. 4) 1972, the wife's allowance was abolished and replaced by a wife's pension. (c) In addition to child endowment. (d) In the case of a 'student child', i.e. where the child is a full-time student and dependent on the pensioner, payment continues until the twenty-first birthday. (e) Payable also to unmarried minor with no parent living in Australia. (f) Introduced by *Social Services Act* (No. 2) 1970, which came into operation on 28 September 1970; commences when sickness benefit has been paid continuously for six weeks, but does not apply in cases where beneficiary is in hospital and has no dependants. (g) For the fourth and each subsequent child the rate increases progressively by 25 cents (e.g. at 1 January 1973, the rate for the fourth child was \$2·25, for the fifth child \$2·50, and so on).

## WAR AND SERVICE PENSIONS

## War Pensions

The *Repatriation Act* 1920–1972 provides for the payment of pensions to ex-servicemen (and ex-servicewomen) and their dependants in respect of disability or death accepted as due to war service.

For members of the forces who served outside Australia, or within Australia in circumstances which can be regarded as combat against the enemy, pensions are payable in respect of incapacity or death which may result from any occurrence during the whole

period of service. If a member served only in Australia, incapacity or death to be pensionable must have been attributable to war service. In all cases, providing a member had at least six months' camp service, a condition which existed at the time of enlistment may be pensionable if it is considered that the condition was aggravated by war service. If, at any time after discharge, an ex-serviceman who served in a theatre of war becomes incapacitated or dies from pulmonary tuberculosis, war pension is payable as if the incapacity or death resulted from an occurrence on service.

The main classes of war pensions are the special (T.P.I.) rate, the intermediate rate, the general rate and the war widow's pension. The special rate of war pension, \$48 per week, is payable to those who are totally and permanently incapacitated and are unable to earn more than a negligible percentage of a living wage. The intermediate rate of war pension, \$34 per week, is payable to an ex-serviceman who, because of the severity of a war-caused incapacity, can work only part-time or intermittently and, in consequence, is unable to earn a living wage. The wife of a pensioner receiving the special rate or the intermediate rate of war pension is paid \$4.05 per week plus \$1.38 per week for each child under sixteen years of age. The general rate of war pension is the rate payable to those who suffer war-caused disabilities but are not thereby prevented from working, although their earning capacity may be reduced. The actual pension payable is assessed in accordance with the degree of incapacity suffered. The maximum (100 per cent) rate is \$14 per week. A wife and children also receive pensions at rates according to the assessed degree of incapacity of the ex-serviceman, the maximum being \$4.05 per week for a wife and \$1.38 per week for each child under sixteen years of age. A war widow's pension at the rate of \$20 per week is paid to the widow of an ex-serviceman who died as a result of war service. Children under the age of sixteen years are pensionable at a weekly rate of \$7.35 for each child. Where both parents are dead, pension at the rate of \$14.70 per week is payable for each child under the age of sixteen years.

An education allowance is paid for children of special rate pensioners and children of ex-servicemen who died as a result of war service. In the case of intermediate and general rate pensioners, the age limit for payment of allowances on account of children is raised to twenty-one years for students receiving full-time education.

Provision is also made for the payment of certain other allowances, among which are a domestic allowance, special compensation allowance, attendant's allowance, and allowances for clothing and recreation transport.

#### WAR PENSIONS (a)—WESTERN AUSTRALIA

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
Number of pensions current at 30 June—					
Incapacitated ex-servicemen .....	18,849	18,668	18,449	18,181	17,888
Dependants of incapacitated ex-servicemen .....	28,008	26,529	25,257	24,037	22,932
Dependants of deceased ex-servicemen .....	4,300	4,295	4,254	4,264	4,228
Miscellaneous (b) .....	36	34	33	32	31
Total .....	51,193	49,526	47,993	46,514	45,079
Amount paid in pensions during year (c) .....	\$'000 11,934	\$'000 13,061	\$'000 12,811	\$'000 13,140	\$'000 14,413

(a) Including pensions in respect of ex-servicewomen. (b) Pensions payable under Seamen's War Pensions and Allowances Act and 'Act of grace' pensions. (c) Includes widows' allowances.

#### Service Pensions

The payment of service pensions is provided for in the *Repatriation Act* 1920-1972 and has operated since 1 January 1936. A means test is applied in respect of income and property.

A service pension may be granted to a former member of the forces who is suffering incapacity from pulmonary tuberculosis, or who has served in a theatre of war (or, in the case of an ex-servicewoman, served abroad) and has attained the age of sixty years (or, in the case of an ex-servicewoman, fifty-five years) or is permanently unemployable.

The maximum weekly rate of pension payable to an ex-serviceman (or an ex-servicewoman) is \$20. This rate applies to an unmarried person (*i.e.* single, widowed or divorced) or to a married person where the spouse is not receiving a Commonwealth pension or allowance. Where the spouse is receiving any such benefit the maximum rate is \$17.25 per week. The maximum pension payable to the wife of an ex-serviceman is \$17.25 per week. The rate for eligible children is \$4.50 for the first child, and twenty-five cents for each additional child, up to and including the fourth child of the family. An eligible child is a child under sixteen years of age, or a child up to twenty-one years who is not receiving an invalid pension and is undergoing full-time education. The service pension of an ex-serviceman is increased by \$4.50 per week for each eligible child, other than the first, whether or not such children qualify for pension in their own right.

A service pensioner who is unmarried, widowed, divorced, or married but separated, and who has care and control of one or more children, qualifies for a guardian's allowance. The maximum weekly rate of the allowance is \$4, which may be increased to \$6 where the pensioner has the custody, care and control of a child (or children) under six years of age, or an invalid child (or children) requiring full-time care and attention.

Supplementary assistance up to a maximum of \$2 per week each may be paid to an ex-serviceman and his wife who are paying rent, or for lodging, or board and lodging. The maximum rate of assistance for an unmarried person is \$4 per week.

The number of service pensions current in Western Australia at 30 June and the amount paid in pensions in the period 1967-68 to 1971-72 are shown in the following table.

#### SERVICE PENSIONS (a)—WESTERN AUSTRALIA

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
Number of pensions current at 30 June—					
Ex-servicemen .....	6,041	5,951	6,282	6,314	6,385
Dependants of—					
Living service pensioners .....	1,069	863	1,004	972	970
Deceased service pensioners .....	472	482	494	477	504
Miscellaneous (b) .....	4	2	3	4	5
<b>Total .....</b>	<b>7,586</b>	<b>7,298</b>	<b>7,783</b>	<b>7,767</b>	<b>7,864</b>
Amount paid in pensions during year .....	\$'000 3,777	\$'000 4,071	\$'000 4,491	\$'000 4,769	\$'000 5,298

(a) Including pensions in respect of ex-servicewomen.

(b) 'Act of grace' pensions.

#### Summary of Rates, 1969 to 1973

The following table shows the maximum weekly rates of war and service pensions being paid at 1 January of the years 1969 to 1973. The rates applying to certain allowances and other forms of assistance are also shown.

#### WAR AND SERVICE PENSIONS—MAXIMUM WEEKLY RATES (\$)

Pension or allowance	At 1 January—				
	1969	1970	1971	1972	1973
War pensions—					
Special rate .....	33.50	36.00	38.00	42.50	48.00
Intermediate rate .....	24.25	26.50	28.00	30.25	34.00
General rate .....	12.00	12.00	12.00	12.00	14.00
Wife .....	4.05	4.05	4.05	4.05	4.05
Each child under 16 years of age (a) .....	1.38	1.38	1.38	1.38	(b) 1.38
War widows—					
Pension .....	14.00	15.00	15.50	17.25	20.00
Domestic allowance (c) .....	7.00	7.50	8.00	8.00	8.50
War orphans under 16 years of age (a)—					
Where one parent dead—					
First child .....	5.40	5.40	6.00	7.00	7.35
Second and each subsequent child .....	4.25	4.25	5.00	7.00	7.35
Where both parents dead—					
Each child .....	10.15	10.15	12.00	14.00	14.70

For footnotes, see page 241.

WAR AND SERVICE PENSIONS—MAXIMUM WEEKLY RATES—*continued*  
(\$)

Pension or allowance	At 1 January—				
	1969	1970	1971	1972	1973
Service pensions—					
Unmarried person .....	14.00	15.00	15.50	17.25	20.00
Married person .....	12.50	13.25	13.75	15.25	17.25
Wife's pension .....	7.00	7.00	7.00	8.00	17.25
Payments in respect of dependent children (a)—					
Under 16 years of age (d)—					
First child .....	2.50	2.50	2.50	4.50	4.50
Each other child up to the fourth .....	2.75	3.75	3.75	4.75	4.75
Fifth and each subsequent child .....	2.50	3.50	3.50	4.50	4.50
Guardian's allowance—					
Where there is a child aged under 6 years or an invalid child requiring full-time care .....	4.00	6.00	6.00	6.00	6.00
Other cases .....	4.00	4.00	4.00	4.00	4.00
Supplementary assistance .....	2.00	2.00	2.00	2.00	4.00

(a) The amounts shown are payable in addition to child endowment. (b) The *Repatriation Act (No. 2) 1972*, operative from 27 September 1972, provides that, where a child of an intermediate or general rate pensioner is receiving full-time education, payment may continue until the twenty-first birthday.

(c) Payable, in addition to pension, to a war widow if she has a dependent child or children under 16 years of age, or is 50 years of age or over, or is permanently unemployed, or has a child over 16 years of age undertaking education or training and not receiving an adequate living wage. (d) In the case of a 'student child', i.e. where the child is a full-time student and dependent on the pensioner, payment continues until the twenty-first birthday.

## NATIONAL HEALTH SERVICES

The *National Health Act 1953-1972* provides for expenditure from the National Welfare Fund in respect of a free general practitioner service to eligible pensioners and their dependants; hospital, medical and pharmaceutical benefits to the community generally; and subsidised health insurance for certain persons. Other services financed from the Fund are the nutrition of children by the free supply of milk; the payment of handicapped children's benefits; the payment of allowances to sufferers from tuberculosis; reimbursement to State Governments of maintenance expenditure in relation to the diagnosis, treatment and control of tuberculosis; and a number of miscellaneous health services.

Payments from the National Welfare Fund in respect of health services in Western Australia during the five-year period ended 30 June 1972 are shown on page 268.

### Hospital and Nursing Home Benefits

The payment of hospital and nursing home benefits is authorised under Part V of the National Health Act. Benefits are payable only in respect of treatment received in approved hospitals and approved nursing homes. For the purposes of the National Health Act, premises which provide medical treatment, care and accommodation for sick persons are approved either as hospitals or as nursing homes depending mainly on their clinical standards and the type of patients accommodated. The basic principle of the provision of Commonwealth hospital benefits is the encouragement of voluntary insurance by individuals against the costs involved.

Payment of \$2 per day is made by the Commonwealth for patients in approved hospitals who are contributors to a registered hospital benefit fund, the benefit being paid through the fund. Payment of eighty cents per day is made direct to the hospital for patients who are not contributors to a benefit organisation.

In accordance with an amendment to the National Health Act effective from 1 July 1970, a Commonwealth benefit of \$2 per day is payable direct to approved hospitals in respect of patients, whether insured or uninsured, provided that no charge is made by the hospital.

Under arrangements made with the States, pensioners enrolled in the Pensioner Medical Service and their dependants are entitled to free treatment in public wards of public hospitals. The Commonwealth pays the hospitals a benefit of \$5 per day for each patient.

Commonwealth benefit of \$3·50 per day is paid for all qualified patients in approved nursing homes, whether the patient is insured or not. A supplementary benefit of \$3 per day is payable for those patients in approved nursing homes who need and receive intensive nursing home care.

An additional nursing home benefit, subject to a statutory maximum, is payable by the Commonwealth for pensioners enrolled in the Pensioner Medical Service and their dependants. The rate of benefit varies as between States, the maximum rate payable in Western Australia being \$1·60 per day. Registered hospital insurance organisations may pay the additional benefit at the same rate in respect of their members.

The following table shows the amounts of benefit paid in Western Australia during each financial year from 1967-68 to 1971-72, and the number and membership of registered benefit organisations at 30 June in each year. It should be noted that the total number of persons covered by hospital benefit schemes is considerably higher than the number of members shown, as many members contribute on account of dependants as well as for themselves.

#### HOSPITAL AND NURSING HOME BENEFITS—WESTERN AUSTRALIA

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
Registered organisations—					
Number at 30 June	9	8	8	7	7
Membership at 30 June	292,803	317,049	330,298	349,359	368,471
Amount of benefit paid during year—					
Commonwealth benefit (a)—	\$'000	\$'000	\$'000	\$'000	\$'000
Hospital patients	4,376	4,590	4,834	5,606	7,804
Nursing home patients	2,222	2,812	4,319	4,650	6,688
Total	6,598	7,402	9,153	10,256	14,492
Fund benefit	7,033	8,505	9,400	10,922	17,594

(a) For details see table on page 268.

A 'special account' system was introduced on 1 January 1959 to provide an assured rate of hospital fund benefits to contributors who would otherwise have been excluded from fund benefits on account of organisations' rules covering pre-existing ailments, chronic illnesses and maximum fund benefit. One condition of payment is that the treatment in respect of which the fund benefit is paid is given in an approved hospital, although fund benefit is also payable in certain circumstances in respect of treatment given in approved nursing homes. If the payments from special accounts exceed the contributions credited to the account, the amount of the deficit is reimbursed by the Commonwealth.

Australian residents who receive hospital treatment in recognised hospitals in overseas countries, while temporarily absent from Australia, are eligible to receive the Commonwealth and fund benefits to which they are entitled.

#### Handicapped Children's Benefit

An amendment to the National Health Act in 1968 provided for the introduction of a handicapped children's benefit. Payment is made at the rate of \$1·50 per day on behalf of each handicapped child under sixteen years of age accommodated in a private non-profit institution, where the child receives medical or paramedical treatment and nursing care. The benefit became payable from 1 January 1969.

#### Medical Benefits

A Medical Benefits Scheme commenced to operate from 1 July 1953, being authorised under the National Health (Medical Benefits) Regulations. These regulations were superseded by the National Health Act. The basic principle of the scheme is the encouragement of voluntary insurance by individuals against the costs of medical attention, which may include prescribed services carried out by an approved dental practitioner in an operating theatre of an approved hospital. The scheme provides for the payment of

benefits by the Commonwealth, through medical insurance organisations registered for the purpose. The Commonwealth benefits supplement the benefits paid by the registered organisations in respect of a proportion of the medical expenses, such as fees for medical and surgical treatment, incurred by members of those organisations and their dependants. Benefits provided by the Commonwealth are paid either on a fee-for-service basis or in the form of a subsidy representing a proportion of the payments made to medical practitioners by registered organisations under contract arrangements.

Under the 'special account' system referred to on page 242, contributors who would otherwise be excluded from fund benefits because of organisations' rules covering pre-existing or long-term ailments receive full fund benefits with the Commonwealth reimbursing the organisations for any deficits incurred in providing benefits in such cases.

Australian residents who, while temporarily absent from Australia, receive medical attention by registered medical practitioners are entitled, if insured, to the Commonwealth benefit and the medical fund benefit to which they would be entitled if the service were rendered in Australia.

The following table shows the number of medical services rendered in Western Australia to members of medical benefit organisations and their dependants during each financial year from 1967-68 to 1971-72. The number of organisations and their membership at 30 June in each year are also shown. It should be noted that the total number of persons covered by medical benefit schemes is considerably higher than the number of contributors, as many members subscribe for benefits on account of dependants as well as for themselves.

#### MEDICAL BENEFITS—WESTERN AUSTRALIA

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
Registered organisations—					
Number at 30 June ....	8	8	8	8	8
Membership at 30 June ....	284,463	309,291	323,486	344,380	358,476
	'000	'000	'000	'000	'000
Number of medical services received during year—					
General practitioner services ....	1,594	1,760	2,050	1,886	2,136
Other ....	1,001	1,022	1,029	1,311	1,678
Total ....	2,594	2,782	3,079	3,197	3,814
Amount of benefit paid during year—	\$'000	\$'000	\$'000	\$'000	\$'000
Commonwealth benefit (a) ....	5,265	5,600	6,373	9,782	13,800
Fund benefit ....	4,268	4,888	5,654	5,746	7,130

(a) For details see table on page 268. Includes payments in respect of pensioners.

A Pensioner Medical Service, which commenced on 21 February 1951, was introduced under the authority of the National Health (Medical Services to Pensioners) Regulations made under the provisions of the *National Health Service Act 1948-1949*. The service has been continued under the provisions of the *National Health Act 1953-1972*.

Under the scheme, qualified persons and their dependants, including student children aged up to twenty-one years, are provided with a free general practitioner service. Specialist services are not provided. A small fee may be charged by practitioners who attend qualified patients outside normal surgery or visiting hours. Practitioners in the scheme are remunerated on a fee-for-service basis by the Commonwealth Government.

#### Subsidised Health Insurance

In September 1969 the National Health Act was amended to provide free health insurance for persons receiving unemployment and sickness benefits; for migrants during their first two months in Australia; and for families with weekly income not exceeding \$39, an amount approximating the average of the Commonwealth minimum wage rates for adult males then current in the several States. In December 1969 the Commonwealth minimum weekly wage was increased by \$3.50, and in order to maintain the position

applying prior to that time an amendment to the Act in 1970 raised the level of eligibility to \$42·50 per week. This amendment also provided for graduated assistance towards the payment of health insurance contributions by families with weekly incomes not exceeding \$48·50.

In terms of an amendment of 2 June 1972 to regulations under the National Health Act, families with weekly income of \$51·50 or less are entitled to full medical benefits, and also to hospital benefits equal to the cost of public ward treatment, without any payment of contributions. Families with income of more than \$51·50 but not more than \$54·50 per week are eligible for the same benefits on payment of contributions at one-third of the usual rate, while those with income of more than \$54·50 but not more than \$57·50 per week are eligible for the benefits on payment of contributions at two-thirds of the usual rate. Families eligible for this assistance may secure insurance cover higher than that needed to meet public ward hospital charges by paying the extra contributions involved.

### Pharmaceutical Benefits

The Pharmaceutical Benefits Scheme was inaugurated on 4 September 1950 when certain life-saving and disease-preventing drugs became available to the general community free of charge if duly prescribed by a medical practitioner registered in Australia.

From 1 March 1960 a charge has been levied, except in the case of pensioners or their dependants, for each prescription dispensed and for each repeat supply. With the introduction of this charge, the list of drugs available as pharmaceutical benefits was greatly expanded and now comprises a wide range of drugs. These include the majority of drugs covered by the British Pharmacopoeia, and additions are recommended from time to time by the Pharmaceutical Benefits Advisory Committee, a committee of experts which advises the Government on the value of drugs most suitable for the treatment of various diseases.

The charge for each prescription dispensed (and for each repeat supply) is \$1, except in the case of subsidised health beneficiaries, who pay fifty cents, and pensioners to whom drugs are supplied without charge.

A service providing pharmaceutical benefits free of charge to pensioners has been in operation since 2 July 1951. The full range of medicines supplied under the general scheme, and certain additional drugs, are available for this service. Persons qualifying for benefits are those who hold a Pensioner Medical Service entitlement card, and the dependants of such persons including student children aged up to twenty-one years.

### Free Milk for School Children

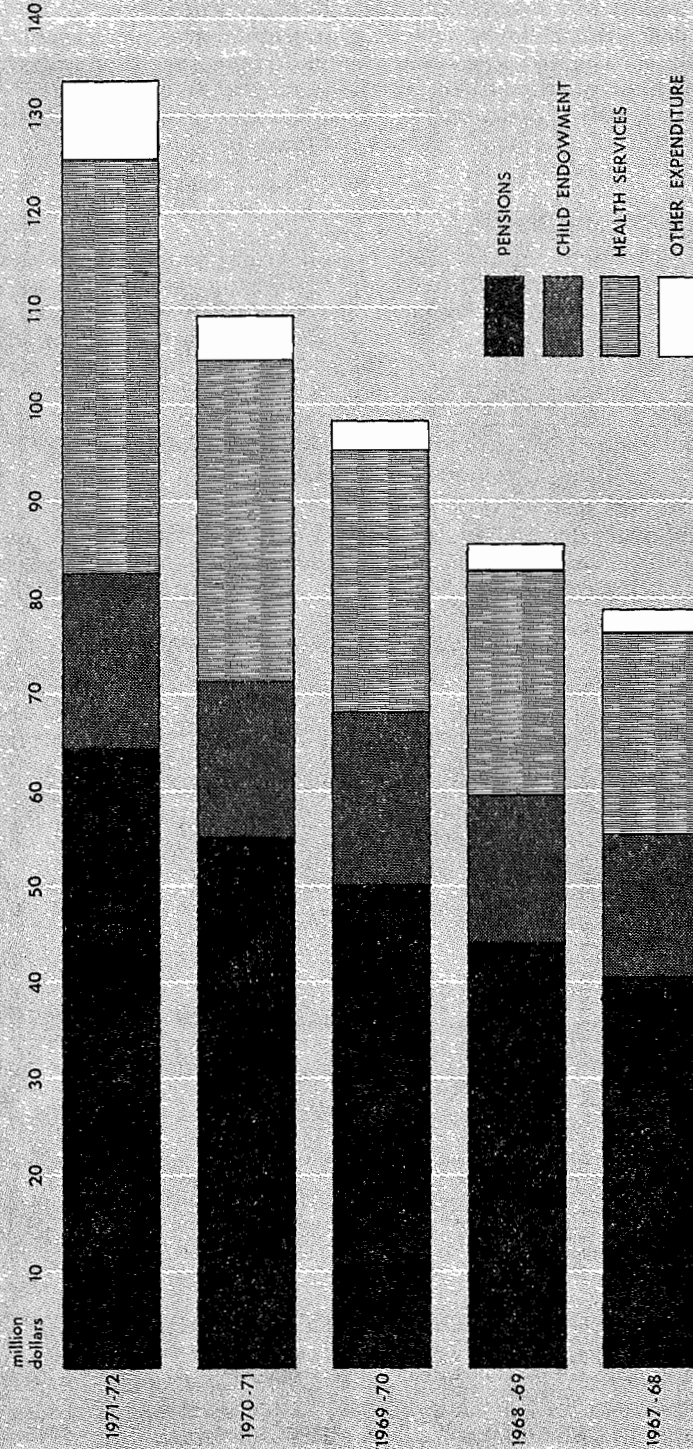
The *States Grants (Milk for School Children) Act* 1950 provides for the distribution of free milk to school children throughout the Commonwealth, with the object of improving their diet. All children under the age of thirteen years attending school are eligible to receive this issue. The cost of the milk plus half the capital or incidental costs, including expenses incurred in administering the scheme, is reimbursed by the Commonwealth to the State, which arranges for the distribution.

### Tuberculosis Campaign

The *Tuberculosis Act* 1948 provides for a joint Commonwealth and State campaign against tuberculosis. The Commonwealth has an arrangement with the States, whereby each State is required to conduct a campaign against tuberculosis and to provide adequate facilities for that purpose. In consideration of this, the Commonwealth undertakes to reimburse the State for all approved capital expenditure in relation to tuberculosis and for net maintenance expenditure to the extent that it is in excess of net maintenance expenditure for the base year 1947-48. Thus, the States are required to carry out the actual physical or field work of the national campaign with the Commonwealth acting in an advisory, co-ordinating and financial capacity.

The Act provides also for the payment of allowances to sufferers and their dependants at such rates as the Director-General of Health, subject to the direction of the Minister,

# **National Welfare Fund** **EXPENDITURE IN WESTERN AUSTRALIA** **1967-68 to 1971-72**



determines. Payments under the scheme commenced on 13 July 1950. The maximum rate of allowance to a married sufferer with dependent spouse is \$37.75 per week. Allowances for dependent children, including student children, are payable at the rate of \$4.50 per week for each child. A sufferer without dependants is eligible to receive a maximum of \$23.25 per week or, if receiving hospital treatment free of charge, \$20 per week. There is a means test, which applies only to income and not to property. In certain circumstances, additional benefits may be payable in the form of a mother's or guardian's allowance or supplementary assistance.

### Miscellaneous Health Services

Other Commonwealth expenditure on health services includes the cost of district health laboratory services, the free supply of certain prophylactic materials and biological products (e.g. poliomyelitis vaccine), the supply and maintenance of hearing aids for children and pensioners, subsidies to various voluntary organisations conducting home-nursing services that are assisted by the State Governments or local government authorities, the supply of artificially produced radio-active isotopes to private medical practitioners and hospitals for medical treatment purposes, and expenses in connection with the blood fractionation plant of the Commonwealth Serum Laboratories.

### Summary of Rates, 1969 to 1973

The following table shows the daily amounts of hospital and nursing home benefits and handicapped children's benefit being paid at 1 January of the years 1969 to 1973. The maximum weekly rates of tuberculosis allowances at each date are also shown.

NATIONAL HEALTH SERVICE PAYMENTS (a)  
(\$)

Benefit or allowance (a)	At 1 January—				
	1969	1970	1971	1972	1973
Hospital benefits (per day)—					
Insured patient (b) .....	2.00	2.00	2.00	2.00	2.00
Uninsured patient .....	0.80	0.80	0.80	0.80	0.80
Patient treated without charge (c) .....	.....	.....	2.00	2.00	2.00
Pensioner patient in public hospital (d) .....	5.00	5.00	5.00	5.00	5.00
Nursing home benefits (per day)—					
Ordinary benefit .....	2.00	2.00	2.00	3.50	3.50
Supplementary benefit for intensive care .....	3.00	3.00	3.00	3.00	3.00
Additional benefit (e) .....	.....	.....	.....	.....	1.60
Handicapped children's benefit (per day) .....	1.50	1.50	1.50	1.50	1.50
Tuberculosis allowances—					
Maximum weekly rate—					
Sufferer with dependent spouse .....	28.25	29.75	30.75	33.75	37.75
Sufferer without spouse but with dependent child or children .....	18.00	23.00	23.50	25.25	28.00
Sufferer without dependants—					
While undergoing approved domiciliary treatment .....	17.25	18.25	18.75	20.50	23.25
While undergoing free hospital treatment .....	14.00	15.00	15.50	17.25	20.00
Payments in respect of dependent children (f) (g)—					
First child under 16 years of age .....	2.50	2.50	2.50	4.50	4.50
Each other child under 16 years of age .....	2.50	3.50	3.50	4.50	4.50

(a) In addition to the benefits shown, payments from the National Welfare Fund in respect of National Health Services include medical benefits (see page 242), pharmaceutical benefits (see page 244), the cost of milk supplied free to school children (see page 244), miscellaneous health services (see above), and subsidised health insurance (see pages 243-4). (b) Member of an approved hospital insurance organisation. (c) Introduced 1 July 1970; benefit payable in respect of each non-pensioner patient, whether insured or uninsured, provided that no hospital fee is charged. (d) Benefit payable on account of a pensioner enrolled in the Pensioner Medical Service who is a patient in a public hospital and for whom no fees are charged. (e) Introduced 1 January 1973. Rate of benefit varies as between States; the amount shown is the maximum rate payable in Western Australia. (f) In addition to child endowment. (g) In the case of a 'student child', i.e. a dependent child who is receiving full-time education at a school, college or university, payment continues until the twenty-first birthday.

### DEPARTMENT FOR COMMUNITY WELFARE, WESTERN AUSTRALIA

The *Community Welfare Act, 1972*, which came into operation on 1 July 1972, establishes the Department for Community Welfare. The *Child Welfare Act Amendment Act (No. 2), 1972* abolishes the former Child Welfare Department and transfers its functions to the Department for Community Welfare. The *Aboriginal Affairs Planning Authority Act, 1972* repeals the *Native Welfare Act, 1963*. The welfare functions of the former Depart-

ment of Native Welfare were transferred to the Department for Community Welfare with effect from 1 July 1972.

The functions of the Department for Community Welfare, as defined in the *Community Welfare Act, 1972*, are: '(a) to promote individual and family welfare in the community; (b) to prevent the disruption of the welfare of individuals and families in the community, and to mitigate the effects of any disruption; (c) to co-ordinate, assist and encourage the provision of social welfare services to the community, and for that purpose to confer and collaborate with other bodies and instrumentalities who offer, or may offer, a social welfare service; (d) to conduct, promote and encourage research into the problems of community welfare; (e) to conduct, promote and encourage programmes of training or rehabilitation, or which are otherwise of a nature that is concerned with the advancement of the welfare of particular individuals or groups in the community who are disadvantaged; (f) to consider and initiate, or to assist in, the provision and development of new or additional welfare services, whether of a general or specific nature, for individuals or groups within the community who are needy or disadvantaged; (g) to encourage the development of the greatest possible degree of service and administration at the local level, and to emphasise the value of preventive measures; (h) to provide assistance, where the Minister considers it to be necessary, when the welfare of any individual, family or group is threatened or in jeopardy; (i) to provide and, where appropriate, to manage facilities, which may include land, buildings and specialized appliances, for specific purposes consistent with the objects of this Act; (j) generally, to administer and give effect to the provisions of this Act and to carry out such other functions as may be prescribed, or as the Minister may direct.'

The Acts administered by the Director of the Department for Community Welfare, subject to any direction of the Minister, are the Community Welfare Act, the Child Welfare Act, the Welfare and Assistance Act, the Adoption of Children Act, and the Guardianship of Children Act.

#### STATE RELIEF PAYMENTS

Under the provisions of the *Welfare and Assistance Act, 1961*, the State Government, through the Department for Community Welfare, extends financial assistance to indigent persons. These relief payments which in many cases supplement the social benefits provided by the Commonwealth Government are made primarily to ensure that dependent children do not suffer hardship from the indigence of parents or guardians. Those assisted include deserted wives, unmarried mothers, divorced women, widows having the care of children, and families where the husband is unable to provide adequate support because of sickness, unemployment, age or imprisonment.

Other aid provided by the State for persons in need includes free travel for country people requiring medical treatment in the metropolitan area and the provision of school requisites for children of women receiving financial assistance. In certain circumstances, the burial of indigent persons is arranged at State expense.

Deserted wives and unmarried mothers applying to the Department for assistance are given advice concerning the legal redress available to them and it is usual for application to be made to a Summary Relief Court or a Children's Court for an order requiring the husband or the father to provide maintenance. Court orders are enforceable throughout Australia and in certain overseas countries.

State monetary assistance to widows, not in receipt of a Commonwealth widow's pension, and not having dependent children, is at a maximum rate of \$17.25 per week. A widow with a dependent child or children may receive \$20 per week, plus \$8.50 for the first child, \$4.50 per week for the second child, \$6.50 per week for the third child, and \$4.50 per week for each other dependent child in her care. Unmarried mothers receive State monetary assistance at the same rate. To a widow receiving a Commonwealth pension the State pays \$2 per week if she has three or more dependent children. In this context, the term 'widow' includes deserted wives, divorced women, and women deprived of support by the insanity or imprisonment of husbands. If an age or invalid pensioner has dependent children, the State allows \$2 per week where there is one child, or \$2.50 per week where there is more than one dependent child.

Where Commonwealth unemployment or sickness benefits are payable, State financial assistance of \$11.25 for parents, plus \$1.50 for each dependent child up to a maximum of seven children, is paid for one week pending receipt of the Commonwealth benefit. In addition, Commonwealth child endowment is payable in respect of all dependent children. Details of Commonwealth Social Service benefits are given earlier in this Part in the section *Social Service Benefits*. The amount of State assistance granted is subject to a means test and in assessing income the earnings of the children of a family are taken into account.

#### FAMILIES GRANTED FINANCIAL ASSISTANCE BY CHILD WELFARE DEPARTMENT (a)

Category	Number of applications approved				
	1967-68	1968-69	1969-70	1970-71	1971-72
Deserted wives ....	598	718	905	1,274	1,510
Divorced women ....	21	26	32	18	36
Foster mothers ....	109	103	110	103	255
Husband imprisoned ....	165	184	202	272	463
Husband pensioner ....	1	3	....	33	47
Husband sick or unemployed ....	1,242	1,230	1,204	1,716	3,492
Special cases ....	134	119	118	125	36
Unmarried mothers ....	90	201	254	475	610
Widows ....	76	72	47	45	72
Total ....	2,436	2,656	2,872	4,061	6,521

(a) See letterpress *Department for Community Welfare* on pages 246-7.

Under the *States Grants (Deserted Wives) Act* 1968, effective from 1 January 1968, the Commonwealth shares on a \$1 for \$1 basis with participating States in the cost of helping certain mothers with dependent children who are ineligible for a Class 'A' widow's pension. The main groups of women assisted are deserted wives during the first six months of desertion; wives during the first six months of the husband's imprisonment; deserted *de facto* wives; and *de facto* wives of prisoners. The grant by the Commonwealth to a State is equal to half the cost of the approved assistance paid by the State to each eligible person but may not exceed half the amount that would have been payable to such a person under the Social Services Act had she been eligible for a Class 'A' widow's pension.

#### CHILD WELFARE

Under the provisions of the *Child Welfare Act, 1947-1972* the State Government, through the Department for Community Welfare, is responsible for the care of State wards and children placed under supervision or released on probation by Children's Courts. For the purposes of the Act, a child is defined as 'any boy or girl under the age of eighteen years'. Institutions caring for children, as well as children brought to Western Australia under child migration schemes, are subject to supervision by the Department, as also are foster-mothers who have in their care children under six years of age and are required under the Act to be licensed for this purpose. Among other functions of the Department are the arranging of legal adoptions and the licensing of children employed in street trading and in public entertainment. A provision of the Child Welfare Act vests in the Department the right to decide which institution or what form of treatment is appropriate to the needs of a child committed by a Children's Court to the care of the Department for treatment, discipline and training.

Children's Courts are established at Perth and at other centres throughout the State and have jurisdiction in all cases where children under eighteen years of age are involved whether as offenders or as being neglected or destitute. The Courts also have jurisdiction to deal with adults committing certain specified offences against children. The public may be excluded from Court hearings and names of juvenile offenders are withheld from publication unless with the express authority of the Court. Adults charged

with certain indictable offences against children may forgo the right to trial by jury and agree to be dealt with summarily by Children's Courts. This power to exercise summary jurisdiction is designed to eliminate as far as possible the necessity for children to appear in open courts as witnesses in cases dealing with sex offences. A Children's Court may commit such offenders for sentence by the Supreme Court of Western Australia or The District Court of Western Australia.

Children guilty of minor offences may be cautioned, fined, bound over, placed on probation, or dismissed without a conviction being recorded. A Court may declare a child to be neglected or destitute and may order the child to be committed to the care of the Department for Community Welfare or released on probation. Children found guilty of offences punishable by imprisonment may be committed to the care of the Department, released on security given by parents, or released on probation under the supervision of the Department. Those guilty of less serious or first offences are generally placed in the care of their parents or suitable guardians under appropriate supervision by officers of the Department for Community Welfare.

**Expenditure.** The following table gives details of the annual expenditure of the Child Welfare Department during the five-year period ended 30 June 1972.

EXPENDITURE OF CHILD WELFARE DEPARTMENT (a)  
(\$'000)

Nature of expenditure	1967-68	1968-69	1969-70	1970-71	1971-72
Administration .....	606	687	853	1,128	1,486
Departmental institutions .....	773	938	1,213	1,617	2,153
Maintenance of wards .....	488	517	751	1,060	1,214
Maintenance of migrant children .....	6	5	6	4	5
Adoption of children .....	.....	.....	41	62	84
Outdoor relief (b) .....	350	451	576	904	1,624
Unemployment relief .....	37	34	22	29	71
Parole classes .....	4	6	3	4	8
Burial of indigents .....	8	11	11	10	15
Total expenditure .....	2,272	2,649	3,476	4,818	6,660
Total revenue .....	186	241	228	280	306
Net expenditure .....	2,086	2,408	3,248	4,538	6,354

(a) See letterpress *Department for Community Welfare* on pages 246-7. (b) Assistance to women with dependent children and to the infirm.

**Supervision of Children.** A child committed to the care of the Department for Community Welfare or to the custody of the Director of the Department for Community Welfare becomes a ward of the Department. A ward may be placed in an institution, boarded out with a relative or other approved person, paroled or placed in suitable employment. The Director of the Department for Community Welfare has authority to place wards of working age in employment or apprenticeship. The *Immigration (Guardianship of Children) Act 1946-1966* (Commonwealth) provides that the Minister for Immigration shall be the guardian of migrant children under the age of twenty-one years who are not in the care of a parent or other relative. In Western Australia this function is exercised, under delegation, by the Director of the Department for Community Welfare.

Some children, other than wards, are also under the supervision of the Department. These comprise children under six years of age who may be either in institutions or in the care of licensed foster-mothers.

**Maintenance of Children.** Payments by the Department for Community Welfare to foster-parents having the care of State wards are at the weekly rate of \$8 for each child. An additional payment of \$1 per week is made in respect of each child aged fifteen years or over. Institutions are paid subsidies of \$8.50 per week for each ward in their care. The British Government pays \$2.50 per week for each British migrant child in institutions or boarded out and the State Government pays an additional amount of \$1.50 per week

where the child is unaccompanied. A further grant of \$1 per week for each child maintained is paid to the institutions by the State Lotteries Commission. Where an institution refuses assistance from the Commission on religious or moral grounds the State Government may grant an equivalent allowance to the institution for each ward maintained. All institutions and foster-parents having the care of children receive Commonwealth child endowment payments. Under an 'emergency' foster placement scheme, children are placed for short periods in approved private homes while awaiting permanent placement.

Parents or step-parents are required to contribute towards the maintenance of wards in institutions or boarded out.

**Day Care Centres.** Any person who provides day-to-day care of children under the age of six years must have a licence issued by the Department in accordance with regulations which specify standards relating to premises, furnishings, equipment, staffing and the general conduct of centres. An advisory service is provided by the Department to assist those wishing to establish centres, and to ensure that the regulations are observed and that good standards of child care are maintained.

**Adoption of Children.** Any person wishing to adopt a child must first obtain the written approval of the Director of the Department for Community Welfare. Legal adoptions may be arranged by the Department or privately by solicitors. In either case, the Director is required to investigate the suitability of applicants and an order for adoption must be obtained from a Judge of the Supreme Court of Western Australia.

**Institutions.** The State Government subsidises homes for children in Western Australia. Most of these institutions are conducted by religious organisations. All institutions having the care of wards (including migrant children) or private children under six years of age are subject to the supervision of the Department.

Departmental institutions provide short-term accommodation for children in need of care and children awaiting proceedings in Children's Courts; assessment facilities for children coming into the care of the Department; treatment centres in the nature of reformatories; and hostel accommodation. Children aged from three years to seventeen years are provided for. Wards under three years of age requiring short-term care are placed by arrangement at Ngal-a Mothercraft Home and Training Centre, South Perth.

The following table shows the number of admissions to institutions of the Child Welfare Department during the five-year period to 30 June 1972. It is important to note that the figures relate to *admissions* and not to *distinct persons*, i.e. a child has been counted once for each time he or she was admitted.

ADMISSIONS TO INSTITUTIONS OF CHILD WELFARE DEPARTMENT (a)

Institution	1967-68	1968-69	1969-70	1970-71	1971-72
Child Welfare Reception Home, Mount Lawley	1,112	763	992	964	1,033
Bridgewater Care and Assessment Centre, Applecross	....	154	211	342	508
Hillston Farm School, Stoneville	118	140	199	233	211
Longmore Remand and Assessment Centre, Bentley	770	1,103	1,329	1,747	1,893
McCall Treatment Centre, Cottesloe	....	....	....	....	19
Nyandi, Bentley	....	....	30	122	112
Riverbank, Caversham	67	90	123	173	231
Total	2,067	2,250	2,884	3,581	4,007

(a) See letterpress *Department for Community Welfare* on pages 246-7.

**Employment of Children.** The *Child Welfare Act, 1947-1972* provides that children may not engage in street trading except under licence granted by the Department for Community Welfare. The issue of licences is restricted to boys aged twelve years and over and it is an offence to employ an unlicensed child. Most of the licences issued are for the sale of newspapers.

The Act provides further that children under the age of sixteen years may not take part in any form of public entertainment for profit or reward unless under licence, except in the case of an occasional entertainment for the benefit of a school or charitable or patriotic object. Most of these licences are issued for concerts arranged by dancing teachers and other tutors.

### SUMMARY OF RELIEF AND WELFARE PAYMENTS

The following table shows the maximum weekly rates of allowances and benefits being paid at 1 January of the years 1969 to 1973 in terms of the Welfare and Assistance Act and the Child Welfare Act.

#### STATE GOVERNMENT RELIEF AND WELFARE PAYMENTS (a) MAXIMUM WEEKLY RATES (\$)

Allowance or benefit	At 1 January—				
	1969	1970	1971	1972	1973
Woman with no dependent children and not receiving widow's pension under Social Services Act (Commonwealth) (b) ....	12.50	13.25	13.75	15.25	17.25
Woman with a dependent child or children who is not receiving widow's pension under Social Services Act (Commonwealth) (b) ....	14.00	15.00	15.50	17.25	20.00
Additional payments in respect of dependent children—					
First child ....	6.50	6.50	6.50	8.50	8.50
Second child ....	2.50	3.50	3.50	4.50	4.50
Third child ....	5.50	5.50	5.50	6.50	6.50
Fourth and each subsequent child ....	2.50	3.50	3.50	4.50	4.50
Widow pensioner with dependent children (c) ....	3.00	2.00	2.00	2.00	2.00
Age or invalid pensioner—					
Payments in respect of dependent children—					
Where there is one child ....	2.00	2.00	2.00	2.00	2.00
Where there are two children ....	2.50	2.50	2.50	2.50	2.50
Where there are three or more children ....	3.50	2.50	2.50	2.50	2.50
Unemployment and sickness benefits—					
First week (d) —					
Married person ....	8.25	8.25	8.25	8.25	8.25
Dependent spouse ....	3.00	3.00	3.00	3.00	3.00
Each dependent child up to and including the seventh ....	1.50	1.50	1.50	1.50	1.50
Second and each subsequent week (e) —					
Where there are one or two children ....	3.00				
Where there are three or four children ....	2.50				
Where there are five or more children ....	2.00				
Wards of the State—					
Foster children in families—					
First child ....	5.60	5.60	7.00	7.00	8.00
Second child ....	5.20	5.20	7.00	7.00	8.00
Third and each additional child ....	5.00	5.00	7.00	7.00	8.00
Additional payment for each child aged 15 years or over ....			1.00	1.00	1.00
In institutions—					
Each child ....	5.10	6.50	7.50	7.50	8.50
Foster child (f) in institution or private home ....	4.50	5.50	5.50	5.50	5.50

(a) Payments made in terms of the Welfare and Assistance Act and the Child Welfare Act. Such payments are, in general intended to supplement benefits provided under the Social Services Act (Commonwealth) as shown on page 238.

(b) Includes divorcee; deserted wife; woman whose husband is in prison or in a mental institution; and unmarried mother receiving no direct assistance under the Social Services Act. The amounts shown apply also in the case of a widow awaiting payment of widow's pension.

(c) Woman receiving widow's pension and having three or more dependent children in her care.

(d) Benefits under the Social Services Act (Commonwealth) are not paid during the first week of unemployment or sickness.

(e) Additional to benefits paid by the Commonwealth Government under the Social Services Act; State Government assistance discontinued 22 October 1969.

(f) Foster child not being a ward of the State.

## *Chapter V—continued*

### **Part 6—Law, Order and Public Safety**

The law in force in Western Australia is contained in The Statutes of Western Australia, comprising legislation passed by the Western Australian Parliament and certain Imperial Acts which have been adopted, and in the Commonwealth Acts in so far as they apply to Western Australia. Under the Constitution of the Commonwealth of Australia, 'when a law of a State is inconsistent with a law of the Commonwealth, the latter shall prevail, and the former shall, to the extent of the inconsistency, be invalid'.

Australian law adheres to the principle that judicial control must in general be exercised by ordinary courts. There is no integrated system of administrative tribunals. The ordinary courts exercise supervision over administrative tribunals either by way of statutory appeal or by the use of prerogative writs of mandamus, prohibition or *certiorari*, by which administrative tribunals can be enjoined to perform a duty or to abstain from excess of jurisdiction, or can have their decisions set aside. A basic feature of the Australian legal system is the 'rule of law': no act, official or unofficial, however *bona fide* and apparently reasonable, which infringes the liberty or rights of an individual is justifiable unless it is authorised by law, and for any such unlawful act, by whatever authority commanded, the official or other person is personally liable in an action in the ordinary courts.

#### **The Legal Profession**

The Barristers' Board, constituted under the *Legal Practitioners Act, 1893-1971*, comprises the Attorney-General as chairman; the Solicitor-General; all Queens' Counsel residing and practising in the State; persons who retire from an office of Judge of the Supreme Court of Western Australia and are resident in the State; and five practitioners of at least three years' standing and practice in the State, elected annually by the practitioners on the roll of the Supreme Court residing and practising in the State.

The Board has the power to regulate and control the examination and admission of articulated clerks, and the examination of all candidates for admission as practitioners. The certificate of the Board is necessary before any person may be admitted to practice. An applicant for admission having qualifications acquired outside Western Australia must satisfy the Board that he possesses qualifications substantially equivalent to those required for the admission of persons who qualify in Western Australia.

#### **The Crown Law Department**

The Crown Law Department is administered, subject to the control of the Minister, by the Under Secretary for Law. The Department is responsible for the Supreme Court Central Office, the District Court Registry, Court Offices throughout the State (except Children's Courts), the Crown Solicitor's Office, the Office of Titles, the Public Trust Office, the Companies Registration Office, and the Probation and Parole Service. The Department, in addition to administering the Acts which come under the portfolio of the Minister, conducts Crown legal business and, when required, acts for and advises all other State Government Departments and instrumentalities.

#### **Parliamentary Commissioner for Administrative Investigations**

The *Parliamentary Commissioner Act, 1971*, which came into operation on 12 May 1972, provides for the appointment of a Parliamentary Commissioner for Administrative Investigations with the powers of a Royal Commission as specified in the *Royal Commissions Act, 1968*. The first Commissioner was appointed on 24 April 1972.

The Commissioner is empowered to investigate administrative actions taken by or on behalf of certain government authorities. The Act applies to all Departments of the Public

Service, excluding officers of the establishment of the Governor and of the Agent General for Western Australia (London), to all local government authorities, and to other specified authorities. It does not apply to the Supreme Court of Western Australia, The District Court of Western Australia, other courts of law in the State, a Judge of the Supreme Court or of the District Court, a commissioner of any court, a stipendiary magistrate, a coroner, the Auditor-General, the Parliamentary Privileges Act, or any decision of the Cabinet or of a Minister of the Crown.

## LAW COURTS

The principal courts operating in Western Australia are the High Court of Australia, the Supreme Court of Western Australia, The District Court of Western Australia, the Magistrates' and Coroners' Courts, the Summary Relief Court and the Licensing Court of Western Australia. In Chapter X, Part 1, reference is made to the Commonwealth Industrial Court, the Commonwealth Conciliation and Arbitration Commission, the Western Australian Industrial Appeal Court, and The Western Australian Industrial Commission.

### High Court of Australia

The High Court of Australia is the Federal Supreme Court and its powers are defined in the Commonwealth Constitution and in the *Judiciary Act* 1903-1969. The High Court consists of a Chief Justice and six other Justices. Sittings are held in the capital city of each State as occasion may require. The High Court exercises both original and appellate jurisdiction, acting as a court of appeal for Australia.

An appeal may lie from a judgment of the High Court of Australia to the Judicial Committee of the Privy Council in London. However, the *Privy Council (Limitation of Appeals) Act* 1968 (Commonwealth), which came into operation on 1 September 1968, limits the matters which may be the subject of special leave of appeal from a decision of the High Court. The Act provides, in part, that leave of appeal 'may be asked only in a matter in which the decision of the High Court was a decision that (a) was given on appeal from a decision of the Supreme Court of a State given otherwise than in the exercise of federal jurisdiction; and (b) did not involve the application or interpretation' of the Australian Constitution, or of a Commonwealth law (including any ordinance, rule, regulation or by-law made under such a law).

### Supreme Court of Western Australia

The Supreme Court of Western Australia, as constituted under the *Supreme Court Act, 1935-1971*, consists of a Chief Justice and such other Judges, not exceeding six in number, as may from time to time be appointed. The jurisdiction of the Court in both civil and criminal matters is exercised by a single Judge, sitting alone or with a jury, unless it is provided that an action must be brought before a Full Court. Criminal cases are heard before a jury. Criminal sittings of the Supreme Court are held at Perth each month from February to December, and also in January if the Chief Justice so directs. Civil sittings and Full Court sittings are held at times fixed by the Court from year to year. There are regular sittings at Albany, Bunbury, Geraldton and Kalgoorlie, and at other country centres as required.

Any two or more Judges together comprise a Full Court except that when sitting as a court of criminal appeal there must be an uneven number of Judges. Appeals are heard against judgments of the Supreme Court and the District Court as well as against decisions of the magistrates in lower courts.

Appeal from a judgment of the Supreme Court of Western Australia lies to the High Court of Australia, subject to the provisions of the *Judiciary Act* 1903-1969 (Commonwealth), and may also be made direct to the Privy Council.

### The District Court of Western Australia

The District Court of Western Australia is constituted under the provisions of the *District Court of Western Australia Act, 1969-1972* and consists of a Chairman of Judges

and such other Judges as may from time to time be appointed. The Act, which came into operation on 1 April 1970, repeals the *Courts of Session Act, 1921*. The jurisdiction of the Court is exercised by a Judge sitting alone or with a jury. Criminal cases must be heard before a Judge and jury. Criminal sittings of the District Court are held at Perth each month from February to December, five times a year at Albany, Bunbury, Geraldton and Kalgoorlie, and at five other centres when required. Civil sittings are held concurrently with criminal sittings in Perth, and immediately following the criminal sittings at other centres except at Bunbury where special civil sittings are held four times a year.

Civil jurisdiction exists broadly up to a maximum of \$10,000, and criminal jurisdiction in respect of indictable offences except those for which the maximum penalty exceeds fourteen years' imprisonment.

Appeals from a District Court Judge lie, in the civil jurisdiction, to the Full Court of the Supreme Court and, in the criminal jurisdiction, to the Court of Criminal Appeal.

### **Third Party Claims Tribunal**

The Third Party Claims Tribunal, which was established under the provisions of the *Motor Vehicle (Third Party Insurance) Act Amendment Act, 1966*, acquired jurisdiction in December 1967. The constitution and functions of the Tribunal are described in earlier issues of the Year Book. The Tribunal was abolished with effect from 13 July 1972 and matters formerly within its jurisdiction were transferred to the Supreme Court of Western Australia, The District Court of Western Australia and Local Courts, as appropriate.

### **Magistrates' and Coroners' Courts**

In addition to their usual functions, magistrates act as coroners and mining wardens where required. Two or more Justices of the Peace sitting together in petty sessions may deal with cases which could be decided by a magistrate sitting alone.

**COURTS OF PETTY SESSIONS.** Courts of Petty Sessions, which are established in terms of the *Justices Act, 1902-1972*, are held at centres of population throughout the State. Minor offences are dealt with summarily, but a person charged with an indictable offence may be committed to a higher court for trial or sentence if there is sufficient evidence to justify this course.

**CHILDREN'S COURTS.** Children's Courts are established under the provisions of the *Child Welfare Act, 1947-1972* to deal with offenders under the age of eighteen years and to hear certain specified cases of offences against children. Certain cases of offences concerning children may be remanded for hearing or committed for sentence before the Supreme Court. The public may be excluded from Children's Court hearings and names of juvenile offenders are withheld from publication unless with the express authority of the Court. Children's Courts operate in Perth, and at other centres as required. Further reference to Children's Courts appears in the section *Child Welfare* in Part 5 of this Chapter.

**SUMMARY RELIEF COURT.** The Summary Relief Court is established under the provisions of the *Married Persons and Children (Summary Relief) Act, 1965-1972* and is empowered to make orders providing for separation, payment of maintenance, legal custody of a child and access to a child.

**LOCAL COURTS.** Local Courts, which are established in terms of the *Local Courts Act, 1904-1970*, are held throughout the State to determine minor civil issues, largely the recovery of small debts. Jurisdiction is limited in most cases to claims not exceeding \$1,000.

**CORONERS' COURTS.** The powers of coroners are derived from the *Coroners Act, 1920-1960*. Coroners' Courts may be held to inquire into the circumstances of sudden or unnatural deaths or the cause and origin of fires. A coroner may charge a person with a major offence and commit him for trial at a higher court.

### **Licensing Court of Western Australia**

The Licensing Court of Western Australia is established under the provisions of the *Liquor Act, 1970-1972*. The Court comprises three members, including a chairman,

appointed by the Governor. Except as otherwise provided by the Act, the Court may be constituted, and its jurisdiction may be exercised, by any two members. The Court has exclusive jurisdiction to hear and determine all applications under the Liquor Act in respect of licences, provisional certificates and permits relating to the sale, supply and consumption of liquor. Appeal against a direction, determination or order of the Court lies to the Supreme Court, but only where the appeal involves a question of law.

## COURT PROCEEDINGS

### Higher Courts

The term *Higher Courts*, as used in the tables on pages 256 and 258, refers to courts presided over by a Judge. The general jurisdiction of the higher courts includes appeals from the lower courts, cases of crime committed from lower courts, and civil cases. Under the *Bankruptcy Act 1966-1970* (Commonwealth) the Supreme Court of Western Australia is invested with jurisdiction in bankruptcy, and under the *Matrimonial Causes Act 1959-1971* (Commonwealth) with jurisdiction in divorce and related matters.

### Civil Proceedings

Particulars of civil cases dealt with by the courts in the five years ended 31 December 1971 are shown in the following table.

#### CIVIL PROCEEDINGS

Particulars	1967	1968	1969	1970	1971
<b>SUPREME COURT OF WESTERN AUSTRALIA—</b>					
Bankruptcy (a)—					
Number of—					
Petitions—					
Filed ....	199	228	233	233	299
Withdrawn or dismissed ....	4	4	4	2	5
Sequestration orders—					
On debtors' petitions ....	183	218	206	218	289
On creditors' petitions ....	12	4	18	11	3
Assignments and arrangements without sequestration	82	52	60	64	98
Assets and liabilities—					
Under sequestration orders—					
Assets .... \$'000	303	230	495	847	637
Liabilities .... \$'000	898	1,013	1,081	1,924	2,322
Under assignments and arrangements without sequestration					
Assets .... \$'000	632	745	896	1,098	2,483
Liabilities .... \$'000	850	941	1,100	1,421	2,702
Divorce (b)—					
Number of—					
Petitions filed ....	890	1,003	1,065	1,206	1,454
Decrees granted ....	727	812	873	890	1,068
Other proceedings—					
Number of—					
Writs commencing actions ....	2,063	1,773	2,264	2,330	1,521
Judgments—					
With trial ....	226	143	101	69	72
Without trial ....	407	637	700	695	415
Amounts awarded .... \$'000	5,770	3,845	3,358	3,368	4,187
<b>DISTRICT COURT OF WESTERN AUSTRALIA (c)—</b>					
Number of—					
Writs commencing actions ....	....	....	....	802	2,253
Judgments—					
With trial ....	....	....	....	51	53
Without trial ....	....	....	....	243	952
<b>THIRD PARTY CLAIMS TRIBUNAL (d)—</b>					
Number of claims filed ....	2	409	694	736	758
Amounts awarded .... \$'000	....	528	2,082	2,713	3,161
<b>LOCAL COURTS—</b>					
Number of—					
Plaints entered ....	55,559	57,689	60,854	64,727	69,026
Verdicts for plaintiffs ....	25,769	24,430	36,734	27,348	27,830
Amounts awarded .... \$'000	2,822	2,812	3,263	3,810	4,144
<b>CORONERS' COURTS—</b>					
Number of inquests—					
On persons ....	230	234	206	192	193
On fires ....	8	2	5	9	11

(a) Figures relate to year ended 30 June; for further details see pages 304-5.  
 (c) See letterpress on pages 253-4.

(d) See letterpress on page 254.

(b) For further details see pages 159-60.

## CONVICTIONS IN COURTS

## Number of Convictions

It is important to bear in mind when considering the particulars shown in the tables on pages 256-8 that the figures relate to the *number of convictions* recorded and not to the *number of persons* convicted. Thus, where a person is convicted on more than one count each conviction so recorded has been included in the statistics below.

## HIGHER COURTS AND MAGISTRATES' COURTS—NUMBER OF CONVICTIONS

Class of offence	1967	1968	1969	1970	1971
HIGHER COURTS					
Offences against the person—					
Murder ....	2	1	5	7	6
Attempted murder ....	3	1	2	....	3
Manslaughter ....	4	5	10	19	20
Negligent driving causing death ....	4	4	5	6	4
Sex offences ....	32	24	16	25	49
Assault ....	25	62	30	35	36
Other ....	7	5	7	14	7
Total ....	77	102	75	106	125
Offences against property—					
Breaking, entering and stealing ....	329	622	674	812	855
Stealing, receiving ....	95	113	58	103	109
Other ....	14	29	50	54	45
Total ....	438	764	782	969	1,009
Forgery and offences against the currency ....	31	41	5	50	196
Offences against good order ....	8	1	1	15	16
Other offences ....	9	44	29	47	26
GRAND TOTAL ....	563	952	892	1,187	1,372
MAGISTRATES' COURTS (a)					
Offences against the person—					
Sex offences ....	172	183	186	180	212
Assault ....	801	871	1,067	1,214	1,466
Other ....	1	3	1	4	2
Total ....	974	1,057	1,254	1,398	1,680
Offences against property—					
Breaking, entering and stealing ....	1,546	1,755	1,835	2,376	2,748
Unlawfully on premises ....	503	723	933	1,003	1,160
Stealing, receiving ....	5,461	6,159	7,286	7,947	9,783
Unlawfully using motor vehicles ....	1,107	1,524	1,279	2,253	3,076
Wilful damage ....	562	743	868	837	1,072
Other ....	46	34	99	43	80
Total ....	9,225	10,938	12,300	14,459	17,919
Forgery and offences against the currency ....	8	70	68	68	177
Offences against good order—					
Drunkenness ....	10,722	11,146	11,970	12,612	16,197
Disorderliness ....	2,899	2,763	3,090	3,071	4,012
Vagrancy ....	625	638	710	699	828
Escaping legal custody ....	141	182	256	260	272
Offences against police ....	826	1,018	1,118	1,112	1,354
Other ....	87	143	226	243	407
Total ....	15,300	15,890	17,370	17,997	23,070
Other offences—					
Breach of—					
Traffic Act (b) ....	36,468	43,929	43,428	34,882	40,388
Native Welfare Act ....	246	615	1,038	965	372
Liquor laws ....	2,811	2,393	2,837	1,730	1,440
Health laws ....	214	184	166	223	214
Gaming ....	118	156	154	308	305
Industrial offences ....	151	119	83	234	96
Maintenance offences ....	842	677	886	606	751
Taxation offences ....	642	504	758	914	1,258
Other offences ....	5,799	5,360	5,614	6,115	5,878
Total ....	47,291	53,937	54,964	45,977	50,702
GRAND TOTAL ....	72,798	81,892	85,956	79,899	93,548

258. (a) Including Children's Courts.

(b) Excludes minor traffic offences not subject to court process; see letterpress on page

## Convictions of Juveniles

The term *juvenile*, as used in relation to the statistics given in this Part, means a person under the age of eighteen years. Convictions of juvenile offenders are included in the figures shown in the tables on page 256 and are given separately in the tables below and on page 258.

The following table shows the number of convictions of juvenile offenders in magistrates' courts (including Children's Courts) in Western Australia during the five-year period ended 31 December 1971. A classification by age of offender is given in the succeeding table.

OFFENCES BY JUVENILES—NUMBER OF CONVICTIONS (a)

Class of offence	1967	1968	1969	1970	1971
<b>Offences against the person—</b>					
Sex offences ....	76	76	93	71	94
Assault ....	107	134	138	184	193
Other ....	1	2	1	2	1
<b>Total</b> ....	<b>184</b>	<b>212</b>	<b>232</b>	<b>257</b>	<b>288</b>
<b>Offences against property—</b>					
Breaking, entering and stealing ....	1,544	1,720	1,781	2,359	2,697
Unlawfully on premises ....	163	199	266	340	431
Stealing, receiving ....	2,318	2,428	3,135	3,365	3,484
Unlawfully using motor vehicles ....	761	970	718	1,568	2,209
Willful damage ....	268	350	423	367	445
Other ....	38	15	61	29	57
<b>Total</b> ....	<b>5,092</b>	<b>5,682</b>	<b>6,384</b>	<b>8,028</b>	<b>9,323</b>
Forgery and offences against the currency ....	4	8	11	29	9
<b>Offences against good order—</b>					
Drunkenness ....	161	193	241	220	396
Disorderliness ....	300	265	348	305	407
Vagrancy ....	33	36	55	54	59
Escaping legal custody ....	10	19	32	38	30
Offences against police ....	143	176	169	197	224
Other ....	34	37	58	35	89
<b>Total</b> ....	<b>681</b>	<b>726</b>	<b>903</b>	<b>849</b>	<b>1,205</b>
<b>Other offences—</b>					
Breach of—					
Traffic Act ....	2,442	2,644	3,211	3,689	4,517
Liquor laws ....	488	481	628	356	461
Other offences ....	188	193	186	284	207
<b>Total</b> ....	<b>3,118</b>	<b>3,318</b>	<b>4,025</b>	<b>4,329</b>	<b>5,185</b>
<b>GRAND TOTAL</b> ....	<b>9,079</b>	<b>9,946</b>	<b>11,555</b>	<b>13,492</b>	<b>16,010</b>

(a) Comprises convictions in magistrates' courts (including Children's Courts).

CONVICTIONS OF JUVENILES, 1971 (a)  
AGES OF OFFENDERS

Class of offence	Age last birthday (years)											Total
	8	9	10	11	12	13	14	15	16	17	Not stated	
Against the person .....	...	...	...	...	4	11	24	51	84	98	16	288
Against property .....	39	81	107	224	439	1,027	1,284	1,911	2,016	1,860	335	9,323
Forgery, etc. ....	...	...	...	...	...	...	...	...	...	...	...	9
Against good order .....	1	1	...	1	7	20	80	161	363	550	21	1,205
Other offences (b) .....	...	...	...	...	...	...	...	...	...	...	...	5,185
Total .....	Not available											16,010

(a) Comprises convictions in magistrates' courts (including Children's Courts).  
convictions for traffic offences and breaches of liquor laws.

(b) The figures shown comprise mainly

## Summary of Convictions in Courts

The following table gives a summary of convictions in courts in Western Australia during each of the five years to 31 December 1971, together with an analysis according to class of offence of convictions recorded during the year ended 31 December 1971.

## HIGHER COURTS AND MAGISTRATES' COURTS—NUMBER OF CONVICTIONS

Particulars	Higher courts			Magistrates' courts			Convictions of juveniles (a)		
	Males	Females	Total	Males	Females	Total	Males	Females	Total

FIVE YEARS ENDED 31 DECEMBER 1971

Year—									
1967 ....	547	16	563	64,256	8,542	72,798	8,331	748	9,079
1968 ....	901	51	952	72,839	9,053	81,892	9,129	817	9,946
1969 ....	867	25	892	76,404	9,552	85,956	10,365	1,190	11,555
1970 ....	1,158	29	1,187	69,890	10,009	79,899	12,166	1,326	13,492
1971 ....	1,235	137	1,372	81,984	11,564	93,548	14,302	1,708	16,010

YEAR ENDED 31 DECEMBER 1971

Class of offence—									
Against the person ....	121	4	125	1,571	109	1,680	261	27	288
Against property ....	976	33	1,009	15,696	2,223	17,919	8,260	1,063	9,323
Forgery, etc. ....	100	96	196	119	58	177	4	5	9
Against good order ....	12	4	16	18,812	4,258	23,070	931	274	1,205
Other offences ....	26	....	26	45,786	4,916	50,702	4,846	339	5,185
Total ....	1,235	137	1,372	81,984	11,564	93,548	14,302	1,708	16,010

(a) Included in figures shown under *Magistrates' courts*.

Regulations under the Traffic Act allow fines to be imposed without court action for minor traffic offences. Similar provisions apply under parking facilities legislation and municipal by-laws. These minor offences (which are, of course, excluded from the tables relating to court convictions) numbered 64,055 in 1967; 83,146 in 1968; 117,436 in 1969; 154,307 in 1970 and 176,994 in 1971.

## LIQUOR LICENCES

The following table shows the number of liquor licences of the several types in force in Western Australia. The figures shown for 30 June of the years 1968 to 1970 relate to licences granted under the provisions of the *Licensing Act, 1911-1969*. The Licensing Act was repealed, with effect from 1 July 1970, by the *Liquor Act, 1970*.

## LIQUOR LICENCES IN FORCE

Type of licence (a)	At 30 June—			Type of licence (b)	At 30 June—	
	1968	1969	1970		1971	1972

Publican's general ....	419	417	419	} Hotel ....	463	467
Wayside house ....	40	39	39			
Australian wine, beer and spirits ....	1	1	1			
Limited hotel ....	5	7	11	} Limited hotel ....	15	17
Australian wine ....	46	45	46			
Australian wine, bottle ....	8	8	8	} Store ....	227	239
Gallon ....	212	213	212			
Packet ....	9	9	9	Packet ....	14	12
Railway refreshment room ....	....	....	....	Railway refreshment room ....	....	....
Spirit merchant's ....	47	47	45	Wholesale spirit merchant's ....	45	46
Brewer's ....	4	4	4	Brewer's ....	4	4
Club ....	251	255	259	Club ....	264	270
Canteen ....	17	13	15	Canteen ....	25	29
Restaurant ....	25	32	41	Restaurant ....	47	63
				Tavern ....	....	1
				Winehouse ....	2	7
				Cabaret ....	17	22
				Theatre ....	1	1
				Vigneron ....	....	....
Total ....	1,084	1,090	1,109	Total ....	1,163	1,214

(a) As described in the *Licensing Act, 1911-1969*.(b) As described in the *Liquor Act, 1970-1972*.

By a provision of the *Government Railways Act, 1904-1972*, The Western Australian Government Railways Commission is authorised to lease railways premises for the sale of refreshments, subject to the provisions of the *Liquor Act, 1970-1972*.

A licence applying to premises at Perth International Airport is issued in terms of the *Airports (Business Concessions) Act 1959-1966* (Commonwealth).

## POLICE

The Western Australian Police Force comprises six main branches under the direction of the Commissioner of Police. The Commissioner is appointed by the Governor under the provisions of the *Police Act, 1892-1972* and is responsible to the Minister for Police.

For the administration of the Uniformed Branch, the State is divided into three metropolitan districts and seven country districts, each under the direction of a commissioned officer. There are four specialised branches, the Criminal Investigation Branch, the Liquor and Gaming Branch, the Firearms and Inquiries Branch, and the Traffic Branch. The Women Police form the sixth branch.

The following table shows the numbers and classification of members of the Western Australian Police Force at 30 June of each year from 1967 to 1971.

POLICE FORCE—NUMBER AND CLASSIFICATION (a)

Date and classification	Branch and number of officers						Total (a)
	Uniformed Branch	Criminal In- vestigation Branch	Liquor and Gaming Branch	Firearms and Inquiries Branch	Women Police	Traffic Branch	
At 30 June—							
1967 ....	(b) 967	105	56	(c)	20	224	1,372
1968 ....	(b) 997	114	55	(c)	21	231	1,418
1969 ....	1,021	125	59	9	23	249	1,486
1970 ....	1,071	146	63	12	29	263	1,584
1971—							
Superintendent ....	11	1	....	1	1	2	16
Senior Inspector ....	8	3	1	....	....	3	15
Inspector ....	9	2	....	....	....	3	14
Sergeant ....	209	56	11	3	4	48	331
Constable ....	762	89	52	8	30	243	1,184
Recruit in training	52	....	....	....	....	....	52
Total ....	1,051	151	64	12	35	299	1,612

(a) In addition to the numbers shown there were a Commissioner of Police and a Deputy Commissioner of Police for each year; a Chief Inspector of Police for 1967 and 1968; and an Assistant Commissioner of Police and a Chief Superintendent of Police for 1969 and later years. (b) Includes officers of the Firearms and Inquiries Branch. (c) Included in numbers shown for Uniformed Branch.

The Uniformed Branch comprises the main body of the Police Force and is responsible for the routine maintenance of law and order throughout the State. Where required, officers of the Branch act as Clerks of Courts and perform special duties for other government authorities.

The Criminal Investigation Branch is centred in Perth, with several sub-branches in the metropolitan area and the principal country towns. The Branch is equipped with radio patrol cars and the usual facilities for work on fingerprints, photography and ballistics. Special staffs attached to the Criminal Investigation Branch are responsible for security and for police work in connection with gold stealing, pillaging and thefts from retail shops.

The Liquor and Gaming Branch is concerned mainly with the enforcement of the liquor laws and laws for the suppression of vice and gaming.

The Firearms and Inquiries Branch is responsible for the licensing of firearms throughout the State. It also makes inquiries concerning the suitability of applicants for licenses to operate as land agents, auctioneers, money-lenders, inquiry agents, employment brokers, and debt collectors.

The Women Police are employed mainly in police duties concerning women and children. Policewomen are stationed at Perth, Fremantle, Midland, Albany, Bunbury, Geraldton and Kalgoorlie.

The Traffic Branch is responsible for the regulation of traffic and the licensing of motor vehicles in the Metropolitan Traffic Area and in certain country areas. In other parts of the State these functions are performed by the local government authorities. Licences to drive motor vehicles are issued by police officers throughout the State. The Traffic Branch is responsible for the patrol of major highways to check commercial vehicles for overloading and for excessive speed. Officers of the Branch instruct school children in the principles of road safety and assist the National Safety Council to conduct a school where young persons are instructed in the proper use of motor cycles. Traffic Education Classes, although held mainly for the instruction of minor offenders against traffic laws, also admit members of the public who attend voluntarily.

Police and Citizens' Youth Clubs are established by the Police Department to provide recreational facilities for young people and to give them an appreciation of civic responsibilities.

### PRISONS

Under the provisions of the *Prisons Act, 1903-1971*, the Director of the Department of Corrections is responsible, subject to the control of the Minister, for the administration of prisons in Western Australia. In addition to prison establishments under the control of the Department of Corrections, there are some police gaols administered jointly by the Department of Corrections and the Police Department.

The principal institution is Fremantle Prison and there are regional prisons at Albany, Broome, Geraldton and Kalgoorlie. Barton's Mill Prison, Brunswick Junction Prison, Bunbury Rehabilitation Centre, Karnet Rehabilitation Centre, Pardelup Prison Farm and Wooroloo Training Centre are minimum security institutions. Bandyup Women's Training Centre, situated at Middle Swan about twelve miles from Perth, is a medium security institution. It was opened in March 1970 and women formerly accommodated at Fremantle Prison were transferred there. A further minimum security institution, for convicted inebriates, was opened at Byford in March 1972.

The following table shows the number of receivals for penal imprisonment in gaols in Western Australia during each of the five years to 30 June 1970. It is important to note that the figures relate to *receivals* and not to *distinct persons*, i.e. a prisoner has been counted once for each time he or she was received.

PENAL IMPRISONMENT—NUMBER OF RECEIVALS (a)

Institution	Year ended 30 June—									
	1967		1968		1969		1970		1971	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
<b>Prisons—</b>										
Fremantle (b) ....	2,795	309	2,790	373	3,097	409	3,199	....	3,637	....
Albany (c) ....	186	41	297	70	231	62	188	49	255	35
Bandyup (d) ....	....	....	....	....	....	....	....	455	....	467
Broome ....	161	19	100	15	144	18	149	8	235	43
Brunswick Junction (e) ....	....	....	....	....	19	....	134	....	124	....
Geraldton ....	286	52	483	119	421	66	487	22	486	34
Kalgoorlie (f) ....	....	....	295	45	513	102	398	90	456	117
<b>Total ....</b>	<b>3,428</b>	<b>421</b>	<b>3,965</b>	<b>622</b>	<b>4,425</b>	<b>657</b>	<b>4,555</b>	<b>624</b>	<b>5,193</b>	<b>696</b>
<b>Police gaols ....</b>	<b>1,291</b>	<b>217</b>	<b>1,126</b>	<b>276</b>	<b>883</b>	<b>218</b>	<b>903</b>	<b>275</b>	<b>1,203</b>	<b>461</b>
<b>GRAND TOTAL ....</b>	<b>4,719</b>	<b>638</b>	<b>5,091</b>	<b>898</b>	<b>5,308</b>	<b>875</b>	<b>5,458</b>	<b>899</b>	<b>6,396</b>	<b>1,157</b>

(a) Excludes imprisonment for debt and receivals of persons on remand. (b) Includes figures for Barton's Mill Prison, Bunbury Rehabilitation Centre (opened 5 February 1971), Karnet Rehabilitation Centre, Pardelup Prison Farm and Wooroloo Training Centre (opened 5 March 1970). (c) Opened 16 September 1966. (d) Opened 13 March 1970. (e) Opened 6 March 1969. (f) On 29 February 1968 the former police gaol was closed and simultaneously gazetted as a prison.

Fremantle Prison is divided into separate sections for prisoners on remand or awaiting trial, juvenile prisoners, and other sentenced prisoners. There are workshops where prisoners are employed in bootmaking, carpentry, printing, tailoring, tinsmithing and welding, making cement products, and in arts and crafts work. Prisoners can also qualify

as cooks and bakers. A school is conducted by teachers supplied by the Education Department, and tuition by correspondence is also available. The section at Fremantle Prison which was occupied by female prisoners before their transfer to Bandyup Women's Training Centre is now used as an assessment centre.

At Barton's Mill Prison the development of trade training workshops is continuing, with the aim of replacing the declining activity of firewood cutting. Farming is carried on at Pardelup Prison Farm and Karnet Rehabilitation Centre, and inmates receive instruction in animal husbandry, market gardening, and the operation and maintenance of farm machinery. Karnet Rehabilitation Centre is a dual-purpose institution with accommodation in two dormitory blocks, one of which houses committed inebriates. The other block provides for selected inmates, mainly first offenders, for whom accommodation has been increased by the erection of single cabins adjacent to the dormitory block. Bunbury Rehabilitation Centre, which was opened in February 1971, receives inmates who have been selected at the Fremantle Prison assessment centre for educational courses and vocational training. Brunswick Junction Prison is used for short-term offenders from the south-west of the State. Short-term offenders from the metropolitan area are sent to the Wooroloo Training Centre.

Police gaols are established in Perth and at other centres. They are used for the detention of short-sentence prisoners and prisoners awaiting trial. In addition, provision is made for holding prisoners for short periods at police stations throughout the State.

The following table shows the number of prisoners, excluding trial and remand prisoners and debtors, in gaols in Western Australia at 30 June in each year from 1967 to 1971.

PRISONERS IN GAOL

Institution	At 30 June—									
	1967		1968		1969		1970		1971	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
<b>Prisons—</b>										
Fremantle	521	46	461	37	523	55	439	....	438	....
Albany (a)	48	5	92	....	60	4	59	....	64	1
Bandyup (b)	....	....	....	....	....	....	....	54	....	57
Barton's Mill	119	....	93	....	123	....	123	....	114	....
Broome	51	7	36	4	37	1	53	2	61	8
Brunswick Junction (c)	....	....	....	....	21	....	24	....	22	....
Bunbury (d)	....	....	....	....	....	....	....	....	31	....
Geraldton	43	3	105	....	99	....	122	1	109	....
Kalgoorlie (e)	....	....	48	2	40	5	32	1	28	....
Karnet—										
Inebriates' Section	57	....	53	....	51	....	56	....	58	....
Other	60	....	70	....	79	....	64	....	42	....
Pardelup	62	....	79	....	65	....	42	....	46	....
Wooroloo (f)	....	....	....	....	....	....	42	....	122	....
<b>Total</b>	961	61	1,037	43	1,098	65	1,056	58	1,135	66
<b>Police gaols</b>	105	10	67	3	48	3	53	7	55	5
<b>GRAND TOTAL</b>	1,066	71	1,104	46	1,146	68	1,109	65	1,190	71

(a) Opened 16 September 1966. (b) Opened 13 March 1970. (c) Opened 6 March 1969. (d) Opened 5 February 1971. (e) On 29 February 1968 the former police gaol was closed and simultaneously gazetted as a prison. (f) Opened 5 March 1970.

## PROBATION AND PAROLE SERVICE

The Probation and Parole Service, a branch of the Crown Law Department, is constituted under the provisions of the *Offenders Probation and Parole Act, 1963-1971*.

The Act establishes a Parole Board of five members, comprising a Judge of the Supreme Court as chairman, the Director of the Department of Corrections, and three members appointed by the Governor.

Probation officers carry out supervision of offenders placed on probation by the courts. A court may require the Chief Probation Officer to report on an offender before passing sentence. These pre-sentence reports are used by the courts as an aid in determining the penalty to be imposed.

The Act requires that where a person is sentenced to imprisonment for twelve months or longer the court shall, unless special circumstances make it inappropriate, fix a minimum term during which the convicted person is not eligible to be released. The court is given discretionary power to fix a minimum term where the sentence is for less than twelve months. Provision is made for the reduction of a minimum term, as a reward for good conduct or industry. Where no minimum term has been fixed, remission of up to 25 per cent of the sentence may be allowed for diligence and good conduct.

The Parole Board is empowered to release on parole a prisoner who has served a minimum term fixed by a court, or a prisoner being detained at the Governor's pleasure.

The Governor may direct the release on parole of a prisoner sentenced to imprisonment for life, a prisoner undergoing a sentence of imprisonment for life commuted from a sentence of death, or an unconvicted person held in custody during the Governor's pleasure following acquittal because of unsoundness of mind. The Parole Board is required to submit to the Minister, at prescribed intervals, a report and a recommendation concerning such prisoners.

Parole officers establish contact with prisoners serving a minimum term (*i.e.* the non-parole period of the sentence) during their imprisonment, prepare a case history of each prisoner for the information of the Parole Board, and supervise paroled persons during the parole period.

The following table gives particulars of the operations of the Probation and Parole Service during the five-year period ended 30 June 1971.

#### PROBATION AND PAROLE SERVICE

Particulars	Year ended 30 June—				
	1967	1968	1969	1970	1971
<b>PROBATION</b>					
Number of persons—					
Under supervision at beginning of period ....	417	656	751	1,023	1,202
Admitted to probation during period ....	403	370	572	609	623
Under supervision during period ....	820	1,026	1,323	1,632	1,825
Cancellation of probation ....	52	66	59	92	156
Completion of probation ....	112	209	241	338	458
Under supervision at end of period ....	656	751	1,023	1,202	1,211
<b>PAROLE</b>					
Number of persons—					
Under supervision at beginning of period ....	207	209	288	336	384
Released on parole during period ....	232	280	348	337	401
Under supervision during period ....	439	489	636	673	785
Cancellation of parole ....	81	72	105	102	154
Completion of parole ....	149	129	195	187	211
Under supervision at end of period ....	209	288	336	384	420

#### PUBLIC SAFETY

##### National Safety Council

The formation of the National Safety Council of Western Australia arose out of discussions among office bearers and senior officials of the Royal Automobile Club of Western Australia concerning ways and means of establishing an organisation for the prevention of accidents. Following a conference between police and education authorities and officers of the Royal Automobile Club, and agreement with the State Government in respect of financial arrangements, the National Safety Council of Western

Australia was established. The first meeting of the Council was held on 29 January 1946. In 1947 the Australian Road Safety Council was formed and the National Safety Council of Western Australia was nominated by the State Government to receive a proportion of the Commonwealth grant for the promotion of road safety. The Home Safety Division of the Council was established in 1963 and the Water Safety Division in 1965. The Safety Instructional Centre at Mount Lawley has a safety training area of some eighteen acres which includes road systems, buildings and equipment for the training of adults and juveniles in each field of activity.

In November 1965 the National Safety Council of Western Australia was affiliated with the National Safety Council of Australia and became the Western Australian Division of that Council. The objects of the Council are to devise and encourage the adoption of safety measures of all kinds; to promote discussion of all matters relating to safety measures; to conduct an educational campaign among the people of Australia to stimulate the adoption and observance of safety measures; and to consider, initiate and support improvements in the laws of the Commonwealth of Australia, the States and local governing bodies, calculated to prevent accidents.

### Fire Protection

**Western Australian Fire Brigades Board.** The *Fire Brigades Act, 1942-1972* constitutes the Western Australian Fire Brigades Board of ten members. The Board comprises two members appointed by the Governor, one of whom is president of the Board; three members elected by the insurance companies carrying on business in the State; one member elected by the Council of the City of Perth; three members elected by other local government authorities; and one member elected by the registered volunteer fire brigades. The general duties of the Board are to take, superintend and enforce all necessary steps for the prevention and extinguishing of fires and the protection of life and property from fire, and the control of all fire brigade premises and of all fire brigades.

#### WESTERN AUSTRALIAN FIRE BRIGADES BOARD—CALLS RECEIVED

Year	Number of fire calls							Number of calls for special services	Total calls		
	False alarms	Fires causing negligible damage	Chimney fires	Other fires causing damage estimated at—							
				Less than \$200	\$200 to \$10,000	\$10,001 to \$200,000	More than \$200,000				
METROPOLITAN FIRE DISTRICT (a)											
1967-68	....	....	1,125	1,498	63	91	141	6	....	121	3,045
1968-69	....	....	1,176	1,874	60	118	215	11	....	215	3,669
1969-70	....	....	1,392	2,198	56	96	215	30	1	314	4,302
1970-71	....	....	1,839	2,039	52	94	267	21	4	340	4,656
1971-72	....	....	1,983	2,610	41	93	288	29	1	364	5,409
OTHER FIRE DISTRICTS											
1967-68	....	....	151	376	66	64	96	7	....	27	787
1968-69	....	....	168	584	61	63	117	8	1	30	1,032
1969-70	....	....	213	621	71	73	119	6	....	61	1,164
1970-71	....	....	209	518	61	71	96	8	....	57	1,020
1971-72	....	....	180	741	50	61	145	8	....	77	1,262
WESTERN AUSTRALIA											
1967-68	....	....	1,276	1,874	129	155	237	13	....	148	3,832
1968-69	....	....	1,344	2,458	121	181	332	19	1	245	4,701
1969-70	....	....	1,605	2,819	127	169	334	36	1	375	5,466
1970-71	....	....	2,048	2,557	113	165	363	29	4	397	5,676
1971-72	....	....	2,163	3,351	91	154	433	37	1	441	6,671

(a) As defined in the Fire Brigades Act.

Seventeen permanent and two volunteer brigades operate in the metropolitan fire district centred on the City of Perth. Permanent brigade personnel serve with volunteer brigade personnel in five large country centres, and volunteer brigades provide town fire protection at sixty-seven other centres. At 30 June 1972, the Board had 581 employees and there were 1,555 volunteer brigade officers and firemen.

**Bush Fires Board.** The Bush Fires Board, which is constituted under the *Bush Fires Act, 1954-1970*, consists of thirteen members appointed by the Governor on the recommendation of the Minister. It comprises the Under Secretary for Lands as chairman; six persons nominated by the Country Shire Councils' Association of W.A.; and one person nominated by each of the following: the Minister for Forests, the Minister for Agriculture, The Western Australian Government Railways Commission, the Fire and Accident Underwriters' Association of Western Australia, the Commissioner of Police, and the Associated Sawmillers and Timber Merchants of Western Australia. The principal functions of the Board are to administer the Bush Fires Act; to report to the Minister on methods of preventing or extinguishing bush fires; to recommend the prohibited burning times to be declared for the whole or any part of the State for any yearly period; to carry out such fire prevention measures as it considers necessary; to carry out research in connection with fire prevention and control; and to conduct publicity campaigns for the purpose of improving fire prevention measures.

At 30 June 1972, there were 915 bush fire brigades comprising 6,886 members, mainly volunteers. During the 1971-72 season, some 383,779 acres (mostly scrub and undeveloped land) were destroyed by fire. The principal cause was 'escape of burning-off operations', which accounted for 29 per cent of all fires. Other fires were caused mainly by burning rubbish, and sparks from vehicles, tractors and cigarettes. The burning of protective fire breaks is carried out by bush fire brigades throughout the agricultural areas.

## CHAPTER VI—FINANCE

### Part 1—Public Finance

In Western Australia there are four groups of authorities responsible for the collection and expenditure of public moneys. They are the State Government ; the Commonwealth Government ; local government authorities, comprising City Councils, Town Councils and Shire Councils ; and public corporations. Public corporations are bodies created by or under legislation to carry out activities on behalf of a government (*e.g.* The State Electricity Commission of Western Australia) or separately incorporated organisations in which a government has a controlling interest.

#### COMMONWEALTH-STATE FINANCIAL RELATIONS

##### The Financial Agreement of 1927

Under the terms of the Financial Agreement, the Commonwealth Government took over from the States their public debts existing at 30 June 1927 and assumed responsibility for all future loan raisings by the Australian Governments. The Commonwealth also agreed to contribute annually for a period of fifty-eight years from 1 July 1927 an amount of \$15,169,824 towards the interest payable on the States' debts, Western Australia's share of this amount being \$946,864.

Sinking Funds established by the Financial Agreement between the Commonwealth and the States are designed to redeem the States' debts as follows: (*a*) debt existing at 30 June 1927, in a period of fifty-eight years thereafter ; (*b*) debt incurred after 30 June 1927 (except for the purpose of financing revenue deficits), in a period of fifty-three years from the date of creation of the debt ; (*c*) debt incurred to finance revenue deficits for the years 1929-30 to 1934-35, in a period of thirty-nine years from 30 June 1944 ; and (*d*) debt incurred to finance other revenue deficits, in a period of approximately seventeen years from the date of its creation.

These Sinking Funds are under the control of the National Debt Commission. Receipts of the Funds consist mainly of contributions from the Consolidated Revenue Funds of the Commonwealth and the States. The Commonwealth and the States make annual contributions of  $\frac{1}{4}$  per cent and  $\frac{1}{4}$  per cent respectively towards the redemption of debt existing at 30 June 1927, and further annual contributions of  $\frac{1}{4}$  per cent each towards the redemption of debt created since that date, with the exception of debt incurred to finance revenue deficits. In respect of debt incurred to finance revenue deficits during the years 1929-30 to 1934-35, the Commonwealth makes an annual contribution of  $\frac{1}{4}$  per cent and the States an annual contribution of  $\frac{3}{4}$  per cent. In respect of debt incurred to finance all other revenue deficits, contributions are at a rate of not less than 4 per cent per annum, and are the sole responsibility of the States concerned. In addition to the foregoing contributions, the States make an annual contribution of  $4\frac{1}{2}$  per cent on the face value of securities redeemed from their Sinking Funds, which in effect accumulates the original contributions and ensures that funds are approximately sufficient to repurchase or redeem the full amount of all debt in a period of fifty-three years.

Subject to the Financial Agreement, the contributions of the Commonwealth and the States in respect of the States' debts are applied by the Commission to the redemption of the public debts of the States, the redemption of loans raised by the Commonwealth for and on behalf of the States, and the repurchase of securities issued in respect thereof. Under the provisions of the Financial Agreement, repurchased or redeemed securities must be cancelled, and the debts of the States are reduced accordingly.

##### The Australian Loan Council

The Australian Loan Council was established by the Financial Agreement Act of 1928 to co-ordinate the public borrowings of the Commonwealth and the States. The

Council has as its Chairman the Prime Minister of the Commonwealth, or a Minister nominated by him, and the other members are the Premiers of the States or, in the absence of a Premier, a Minister nominated by him. The Commonwealth and each State submits to the Council a programme of its desired loan raisings during each financial year, including the amount of any revenue deficit to be funded. The Commonwealth Government's borrowings for defence purposes are expressly excluded from its submissions to the Council. If the Council decides that the total amount of the loan programme for a year cannot be borrowed at reasonable rates and conditions, it decides the amount to be borrowed during the year, and may by unanimous decision allocate this amount between the Commonwealth and the States. Where the members fail to arrive at a unanimous decision the Commonwealth is entitled to a maximum of one-fifth of the total sum to be borrowed. Of the balance, each State is entitled to an amount in the proportion which its net loan expenditure during the preceding five years bears to the aggregate for all the States.

### Grants to the States

**Debt Charges Assistance.** The *States Grants (Debt Charges Assistance) Act 1970* provides Commonwealth financial assistance to the States in connection with interest and sinking fund contributions payable in terms of the Financial Agreement. The assistance is in the form of an annual grant to meet charges on \$200 million of the States' debts in each year from 1970-71 to 1974-75. The grants amount in total to \$172.6 million in respect of \$1,000 million of existing debt. Western Australia's share (\$1.11 million in 1970-71, \$2.21 million in 1971-72, \$3.32 million in 1972-73, \$4.42 million in 1973-74, and \$5.53 million in 1974-75) amounts to \$16.6 million in respect of \$96.1 million of debt. It was agreed at a Premiers' Conference in June 1970 that the \$1,000 million of States' debts to which the Act relates would be formally transferred from the States to the Commonwealth in June 1975.

**The Commonwealth Grants Commission.** Section 96 of the Commonwealth Constitution provides that the States may be granted financial assistance. In 1933 the Commonwealth Parliament passed the Commonwealth Grants Commission Act establishing a Commission of three members to inquire into and report on applications made by States for grants of financial aid.

In each year from 1934-35, in respect of which the Commission made its first recommendation, Western Australia received a Special Grant until it ceased to be a claimant State from and including the year 1968-69, in accordance with an agreement made between the Commonwealth and the State at a Premiers' Conference in June 1968. Following this agreement the Commonwealth was authorised by the *States Grants Act 1968* to pay to Western Australia an amount of \$15.5 million in each of the years 1968-69 and 1969-70, in addition to the Financial Assistance Grant (see below), as a substitute for any Special Grant that might have been recommended by the Commission for those years. For subsequent years, additional grants on a reducing basis were provided by the *States Grants Act 1970* (\$12.5 million for 1970-71), and the *States Grants Act (No. 2) 1971* (\$9.5 million for 1971-72, \$6.5 million for 1972-73, \$3.5 million for 1973-74, and \$0.5 million for 1974-75).

**Other Grants.** As well as the Special Grants paid to some States on the recommendation of the Commonwealth Grants Commission, annual Financial Assistance Grants are made by the Commonwealth Government to every State. Special revenue assistance has been provided in some years in addition to the Special Grants and Financial Assistance Grants. Details of payments made to Western Australia are shown in the next table under the heading *General revenue grants*.

### Other Financial Assistance

As well as providing general financial assistance to the States by means of grants, the Commonwealth Government allocates to them funds for specific purposes, as shown in the next table which gives details of payments made to Western Australia during the five-year period ended 30 June 1971. Social service benefits, national health benefits and

homes savings grants are paid from the National Welfare Fund (see table on page 268). In addition, financial assistance for housing and war service land settlement is provided from Loan Fund.

COMMONWEALTH FINANCIAL ASSISTANCE TO WESTERN AUSTRALIA (a)  
(\$'000)

Nature of payment	1966-67	1967-68	1968-69	1969-70	1970-71
<b>Payments of a revenue nature—</b>					
Financial Agreement—					
Interest on State debts ....	947	947	947	947	947
Sinking Fund contribution ....	1,844	1,986	2,106	2,258	2,384
Debt Charges Assistance Grants ....	....	....	....	....	1,106
General revenue grants—					
Financial Assistance Grants ....	86,396	96,152	(b)123,796	(b)138,835	(b)163,313
Special Grants (c) ....	19,406	15,518	582	....	....
Special Financial Assistance Grants ....	....	....	1,296	1,545	5,030
Education—					
University ....	2,306	2,652	2,833	3,281	3,900
Colleges of advanced education ....	363	776	912	1,929	2,333
Independent (i.e. non-government) schools ....	....	....	....	862	1,682
Research grants ....	155	257	276	323	296
Aboriginal advancement ....	....	....	....	10	26
Development of resources and assistance to industry—					
Agricultural extension services ....	213	294	375	493	598
Bovine brucellosis and tuberculosis eradication ....	....	....	....	64	119
Natural disaster payments ....	....	....	50	42	....
Health—					
Aboriginal advancement ....	....	....	....	10	100
Blood transfusion services ....	92	80	75	76	79
Welfare—					
Aboriginal advancement ....	....	....	....	*10	14
Housekeeper services ....	2	2	2	....	4
Other—					
Road safety practices ....	19	19	19	19	25
Coal mining industry long service leave ....	34	40	45	47	53
<b>Total ....</b>	<b>111,778</b>	<b>118,724</b>	<b>133,313</b>	<b>*150,752</b>	<b>182,010</b>
<b>Payments of a capital nature—</b>					
Transport and communication—					
Commonwealth Aid Roads Acts ....	26,676	28,597	30,537	32,940	36,270
Beef cattle roads grants ....	1,500	1,400	1,451	1,168	1,000
Eyre Highway—Contribution to maintenance ....	25	25	25	25	25
Railway standardisation agreement (d) ....	17,996	19,458	8,362	7,900	5,236
Education—					
University ....	1,160	567	734	2,048	384
Teachers colleges ....	....	1,817	582	201	3
Pre-school teachers colleges ....	....	....	14	161	....
Colleges of advanced education ....	457	1,304	874	1,050	1,903
Technical training ....	551	1,323	437	957	804
Science laboratories in schools ....	899	912	921	921	921
School libraries ....	....	....	168	596	779
Aboriginal advancement ....	....	....	*203	160	250
Development of resources and assistance to industry—					
Water supplies (e) ....	1,250	1,500	2,050	2,000	1,792
Softwood forestry (e) ....	....	450	500	859	424
Investigation and measurement of water resources ....	235	260	273	312	572
Ord River irrigation agreement ....	....	100	5,100	5,850	5,847
Encouragement of meat production ....	8	....	....	....	....
Natural disaster payments ....	....	....	....	130	31
Health—					
Mental institutions—Contribution to capital expenditure ....	260	148	375	241	395
Tuberculosis Act—Reimbursement of capital expenditure ....	....	10	....	....	12
Nursing homes ....	....	....	....	....	337
Aboriginal advancement ....	....	....	75	75	5
Welfare—					
Aboriginal advancement ....	....	....	....	....	205
Dwellings for aged pensioners ....	....	....	....	....	700
Other—					
Aboriginal advancement—Housing ....	....	....	547	990	1,080
Exmouth township development ....	1,952	417	....	59	584
Migrant centre ....	....	357	411	60	65
<b>Total ....</b>	<b>52,969</b>	<b>58,645</b>	<b>53,639</b>	<b>*58,703</b>	<b>59,624</b>
<b>GRAND TOTAL ....</b>	<b>164,746</b>	<b>177,369</b>	<b>186,952</b>	<b>209,455</b>	<b>241,634</b>

(a) Excludes subsidy and bounty payments. (b) Includes payments in place of a Special Grant : 1968-69, \$15,500,000 ; 1969-70, \$15,500,000 ; 1970-71, \$12,500,000. (c) See letterpress *The Commonwealth Grants Commission* on page 266. (d) Includes repayable advances : 1966-67, \$10,586,000 ; 1967-68, \$11,446,000 ; 1968-69, \$4,919,000 ; 1969-70, \$4,647,000 ; 1970-71, \$3,080,000. (e) Repayable advances. \*Revised.

### National Welfare Fund

The National Welfare Fund was established in 1943 by the National Welfare Fund Act passed by the Commonwealth Parliament in that year. The purpose of the fund

is to provide for the payment of social service benefits, health benefits and, in recent years, homes savings grants. Payments from the fund are made in respect of benefits only, and do not include the cost of administering the benefits nor of capital works associated with them.

NATIONAL WELFARE FUND—PAYMENTS IN WESTERN AUSTRALIA (a)  
(\$'000)

Pension, allowance, benefit or other payment	1967-68	1968-69	1969-70	1970-71	1971-72
<b>Social services—</b>					
Age and invalid pensions ....	36,418	39,404	44,637	48,979	57,374
Widows' pensions ....	4,346	4,786	5,600	6,172	7,180
Funeral benefits ....	90	96	102	107	108
Maternity allowances ....	605	648	645	743	724
Child endowment—					
Children under 16 years of age ....	14,845	14,644	(b) 17,004	15,498	17,056
Student children ....		896	(b) 890	926	1,132
Unemployment, sickness and special benefits—					
Unemployment benefits ....	304	309	407	828	2,945
Sickness benefits ....	420	389	508	719	1,159
Special benefits—					
Ordinary ....	33	97	123	151	194
Migrant ....				(c) 74	(c) 96
Sheltered employment allowances (d) ....	5	37	74		
Rehabilitation service—					
Invalid pensioners, etc. ....	193	196	254	331	448
Widows' training scheme (e) ....		12	30	55	54
Personal care subsidy (f) ....			89	123	144
Delivered meals subsidy (g) ....			20	29	28
Assistance for deserted wives (h) ....	35	215	342	544	981
<b>Total, Social services</b> ....	<b>57,295</b>	<b>61,729</b>	<b>70,725</b>	<b>75,279</b>	<b>89,623</b>
<b>Health services—</b>					
<b>Hospital benefits—</b>					
Pensioners ....	2,316	2,375	2,246	2,058	2,333
Uninsured patients—					
In public hospitals ....	153	150	148	94	100
In private hospitals ....			12	10	8
Insured patients ....	1,620	1,722	1,756	1,895	2,223
Patients treated without charge (i)—					
In public hospitals ....				42	22
In private hospitals ....				(c) 789	(c) 1,340
Special account deficits ....	287	343	600	720	1,778
Subsidised health insurance (j) ....			72		
<b>Nursing home benefits—</b>					
Public nursing homes—					
Ordinary benefit ....	855	840	972	964	1,454
Supplementary benefit (k) ....		181	623	667	780
Private nursing homes—					
Ordinary benefit ....	1,367	1,453	1,638	1,712	2,813
Supplementary benefit (k) ....		337	1,085	1,306	1,641
<b>Medical benefits—</b>					
Pensioners ....	1,172	1,168	1,394	1,345	1,835
Insured patients ....	4,013	4,345	4,817	8,229	11,652
Special account deficits ....	80	87	132	85	102
Subsidised health insurance (j) ....			29	123	211
<b>Pharmaceutical benefits—</b>					
Pensioners ....	2,143	2,507	2,720	2,814	3,324
General benefits ....	3,663	4,364	4,950	5,681	5,985
Public hospitals ....	1,286	1,803	2,133	2,679	3,065
Other ....	25	27	34	41	44
<b>Tuberculosis campaign—</b>					
Allowances ....	55	44	39	30	32
Maintenance and surveys ....	807	602	789	770	875
Handicapped children's benefits (l) ....		3	64	60	41
Milk for school children ....	850	797	797	835	997
<b>Miscellaneous health services (m)—</b>					
Commonwealth Health Laboratories ....	36	33	35	49	59
Home nursing services subsidy ....	131	157	177	248	317
<b>Total, Health services (n)</b> ....	<b>20,860</b>	<b>23,340</b>	<b>27,262</b>	<b>33,246</b>	<b>43,032</b>
<b>Homes savings grants</b> ....	<b>740</b>	<b>760</b>	<b>590</b>	<b>691</b>	<b>1,115</b>
<b>GRAND TOTAL (n)</b> ....	<b>78,894</b>	<b>85,828</b>	<b>98,577</b>	<b>109,216</b>	<b>133,770</b>

(a) For conditions and rates applying to payment of social service benefits, health benefits, and other forms of assistance, see Chapter V. (b) A number of endowments are paid every twelve weeks. During two years in every three, there are four such payments each year, and five in the third year. (c) Less than \$500. (d) Payable from 6 July 1967. (e) Introduced 27 September 1968. (f) Payable from 10 October 1969. (g) Payable from 15 April 1970. (h) Payable from 1 January 1968. (i) Introduced 1 July 1970; benefit payable in respect of each non-pensioner patient, whether insured or uninsured, provided that no hospital fee is charged. (j) Introduced 1 January 1970; available to persons receiving unemployment, sickness or special benefit, to families with income below a specified minimum, and to migrants during the first two months in Australia. (k) Introduced 1 January 1969; payable in respect of patients who need and receive intensive nursing home care. (l) Introduced 1 January 1969. (m) In addition to the items shown there are some services, the expenditure on which is not allocable among States. In 1971-72 the cost of these services, for Australia as a whole, was \$3.30 million, comprising the supply of blood products \$1.15 million, radio-active isotopes \$0.93 million, hearing aids for school children and pensioners \$0.64 million, poliomyelitis vaccine \$0.25 million, and other vaccines \$0.32 million. (n) See footnote (m).

## COMMONWEALTH AND STATE TAXATION

## Commonwealth Taxation

The taxes levied in Western Australia by the Commonwealth Government are listed in the table below which shows the net amounts collected in the five years to 1970-71.

It is important to note that, although the figures shown in this table represent the amounts of taxes actually collected in Western Australia, they do not necessarily indicate the amounts contributed by the people of the State, as moneys may be collected in one State in respect of goods consumed or assessments made in other States. Further, administrative arrangements for the collection of certain taxes are such that a large proportion of the revenue (or, as in the case of wheat tax, the whole of the revenue) is brought to account in a State other than Western Australia.

Details of the purposes and rates applicable to the main forms of Commonwealth taxation are given in the *Official Year Book of the Commonwealth of Australia*: No. 58, 1972 on pages 283-6 (customs duties), 316 (excise duties), 556-64 (income tax), and 567-8 and 570-3 (other taxation).

COMMONWEALTH TAXATION—NET COLLECTIONS IN WESTERN AUSTRALIA  
(\$'000)

Tax, duty, charge or levy	1966-67	1967-68	1968-69	1969-70	1970-71
<b>Paid to Consolidated Revenue Fund—</b>					
Income tax (a) ....	165,396	193,765	226,532	280,042	317,373
Customs duties (a) ....	11,839	16,604	19,580	22,865	27,662
Excise duties ....	57,673	62,349	68,642	76,101	88,341
Sales tax (a) ....	25,878	28,944	34,779	40,819	43,647
Pay-roll tax (b) ....	11,574	13,204	15,162	18,180	21,156
Estate duty ....	2,267	2,551	2,482	4,220	3,642
Gift duty ....	962	602	812	1,008	708
Broadcast listeners' and television viewers' licences	2,571	2,666	3,127	3,483	3,689
Other ....	36	38	67	136	212
<b>Total (a) ....</b>	<b>278,197</b>	<b>320,724</b>	<b>371,185</b>	<b>446,854</b>	<b>506,430</b>
<b>Other (c)—</b>					
Wool tax ....	2,370	2,445	3,017	2,541	974
Export charges on primary products	42	29	62	60	82
Stevedoring industry charge	1,025	1,609	1,487	1,455	1,390
Butterfat levy ....	61	59	61	58	56
Canning-fruit charge	1	1	(d)	....	(d)
<b>Livestock slaughter levy—</b>					
Cattle ....	85	93	105	121	116
Sheep and lambs	62	81	101	132	128
Honey levy ....	8	7	8	5	7
Tobacco charge	....	....	3	....	....
<b>Total ....</b>	<b>3,653</b>	<b>4,323</b>	<b>4,845</b>	<b>4,372</b>	<b>2,753</b>
<b>GRAND TOTAL (a) ....</b>	<b>281,850</b>	<b>325,047</b>	<b>376,030</b>	<b>451,226</b>	<b>509,183</b>

(a) The amounts shown have been adjusted by offsetting remissions under special circumstances of income tax, customs duties and sales tax. (b) Discontinued as Commonwealth tax September 1971; from that date collected by State Government (see page 274). (c) Transferred to trust funds or relevant authorities and used for purposes of the industry concerned. (d) Less than \$500.

**Income Tax.** Income tax is by far the most important source of Commonwealth revenue from taxation and accounted for 64.1 per cent of all Commonwealth taxation collections in 1970-71. The tax is levied on the incomes of individuals, companies, partnerships and trusts, and superannuation funds.

The term 'actual income' refers to gross income (including 'exempt income') less expenditure incurred in gaining that income. (The principal items of exempt income are war and service pensions; age and invalid pensions, child endowment, and other payments made in terms of the Social Services Act and the Tuberculosis Act; income from gold-mining and some other mining operations; and income received from a scholarship, bursary or other educational allowance.) 'Taxable income' is equal to actual income less exempt income and allowable deductions, which include special deductions and rebates and, in the case of an individual, concessional deductions. Concessional deductions may be claimed in respect of dependants, housekeepers, education expenses, medical expenses, funeral expenses, life insurance premiums, and payments to superannuation funds and medical and hospital benefits funds.

**INCOME TAX ASSESSMENTS—INDIVIDUALS (a): WESTERN AUSTRALIA**  
**INCOME YEAR 1969-70 (ASSESSMENT YEAR 1970-71)**

Grade of actual income		Number of taxpayers			Actual income (b)	Assessable salary and wages (c)	Taxable income		Net tax	
		Males	Females	Persons			Total	Average per taxpayer	Total	Average per taxpayer
\$	\$				\$'000	\$'000	\$'000	\$	\$'000	\$
417- 599	....	3,683	8,343	12,026	6,166	5,389	5,949	495	125	10
600- 799	....	4,750	9,645	14,395	10,059	8,612	9,430	655	304	21
800- 999	....	5,308	10,006	15,314	13,781	11,845	12,651	826	568	37
1,000- 1,199	....	5,475	10,936	16,411	18,021	15,389	16,283	992	923	56
1,200- 1,399	....	5,642	11,108	16,750	21,763	18,264	19,472	1,163	1,308	78
1,400- 1,599	....	6,379	11,096	17,475	26,217	21,588	23,393	1,339	1,773	101
1,600- 1,799	....	6,634	11,374	18,008	30,604	24,908	27,224	1,512	2,320	129
1,800- 1,999	....	7,204	11,242	18,446	35,041	28,419	31,056	1,684	2,930	159
2,000- 2,199	....	8,273	10,519	18,792	39,400	31,975	34,669	1,845	3,564	190
2,200- 2,399	....	9,179	8,274	17,453	40,121	32,035	34,805	1,994	3,859	221
2,400- 2,599	....	10,408	6,535	16,943	42,339	33,563	36,119	2,132	4,273	252
2,600- 2,799	....	11,695	5,441	17,136	46,227	37,023	38,875	2,269	4,851	283
2,800- 2,999	....	12,729	4,096	16,825	48,775	39,437	40,360	2,399	5,240	311
3,000- 3,199	....	13,858	3,279	17,137	53,126	43,248	43,411	2,533	5,899	344
3,200- 3,399	....	14,157	2,560	16,717	55,148	45,625	44,603	2,668	6,322	378
3,400- 3,599	....	14,214	2,132	16,346	57,177	47,609	45,936	2,810	6,784	415
3,600- 3,799	....	14,159	1,783	15,942	58,959	49,672	47,118	2,956	7,258	455
3,800- 3,999	....	13,469	1,527	14,996	58,448	48,942	46,561	3,105	7,463	498
4,000- 4,999	....	50,351	5,084	55,435	246,692	205,205	195,470	3,526	34,619	625
5,000- 5,999	....	26,373	2,603	28,976	157,732	126,865	124,549	4,298	25,536	881
6,000- 6,999	....	20,938	2,401	15,041	158,782	116,484	125,775	5,389	30,140	1,291
7,000- 7,999	....			8,298						
8,000- 8,999	....	6,365	1,028	4,620	65,262	40,450	52,810	7,143	14,966	2,024
9,000- 9,999	....			2,773						
10,000-11,999	....	2,547	540	3,087	33,614	16,171	27,897	9,037	9,049	2,931
12,000-13,999	....	1,369	256	1,625	20,983	8,655	17,657	10,866	6,285	3,868
14,000-15,999	....	828	152	980	14,603	5,435	12,443	12,697	4,773	4,870
16,000-17,999	....	548	101	649	10,999	3,704	9,485	14,615	3,857	5,943
18,000-19,999	....	332	59	391	7,391	2,056	6,435	16,458	2,727	6,974
20,000-29,999	....	684	115	799	18,706	4,103	16,743	20,955	7,913	9,904
30,000-39,999	....	139	29	168	5,659	818	5,063	30,137	2,661	15,839
40,000-49,999	....	66	15	57	3,816	669	3,426	42,296	1,969	24,309
50,000-59,999	....			24						
60,000-79,999	....	28	5	20	2,456	270	2,188	66,303	1,338	40,545
80,000-99,999	....			13						
100,000 and over	....			19						
Total	....	277,802	142,285	420,087	1,411,797	1,074,448	1,161,175	2,764	213,781	509

(a) An individual was liable to pay tax on income derived in 1969-70 only if the taxable income exceeded \$416. (b) Includes income from salary and wages, investments and property, and business and professional activities. (c) Gross amount of salary and wages, including items such as commission, bonuses, allowances, directors' fees, and superannuation.

**INCOME TAX ASSESSMENTS—COMPANIES (a): WESTERN AUSTRALIA**  
**INCOME YEAR 1969-70 (ASSESSMENT YEAR 1970-71)**

Grade of taxable income		Taxable companies			Non-taxable companies	
		Number	Taxable income	Net tax	Number	Taxable income (b)
\$	\$		\$'000	\$'000		\$'000
Nil	....	....	....	....	(c) 4,252	....
1- 1,999	....	1,305	936	297	123	102
2,000- 9,999	....	1,769	9,903	3,081	226	1,178
10,000- 19,999	....	866	12,051	4,106	73	1,025
20,000- 39,999	....	606	17,100	6,263	27	730
40,000- 99,999	....	453	28,251	10,829	14	874
100,000- 199,999	....	135	18,702	7,595	10	1,456
200,000- 399,999	....	85	24,653	9,736	1	267
400,000- 999,999	....	53	31,608	12,273	1	477
1,000,000-1,999,999	....	13	18,825	8,459	....	....
2,000,000 and over	....	6	25,415	10,370	....	....
Total	....	5,291	187,443	73,009	4,727	6,108

(a) Includes private, public, co-operative, and non-profit companies. (b) A company, other than a non-profit company, is not liable for income tax if its taxable income is less than \$1 or if it is allowed rebates which equal or exceed the tax otherwise payable; a non-profit company is not taxable if the taxable income is \$416 or less. (c) Includes 3,155 companies showing an aggregate loss of \$30.1 million.

The Commonwealth Statistician, Canberra publishes an annual bulletin *Commonwealth Taxation Assessments* which contains comprehensive statistical tables and details of rates of tax, allowable deductions and other conditions applying to tax on incomes of individuals and of companies.

### State Taxation

The net amounts collected in Western Australia in the form of State Government taxation in each year from 1966-67 to 1970-71 are shown in the table on page 276. Information concerning rates of tax and the relevant legislation is given below.

**STAMP DUTIES.** The *Stamp Act, 1921-1972* imposes stamp duties and prescribes the rates applying to a great number of transactions relating to a wide range of property, commodities and services.

**ESTATE DUTY (PROBATE AND SUCCESSION DUTIES).** The *Death Duties (Taxing) Act, 1934-1970* imposes duties on the estates of deceased persons and specifies the rates of duty. Conditions relating to probate and the administration of estates are contained in the *Administration Act, 1903-1971*. Differential rates of estate duty and amounts of exemption apply according to distinct categories of beneficiary. The following table shows the amounts of duty payable at 30 June 1972 on estates of persons dying on or after 1 July 1970, classified according to the dutiable value of the estate.

ESTATE DUTY—AMOUNTS PAYABLE AT 30 JUNE 1972  
CLASSIFIED ACCORDING TO VALUE OF ESTATE

Dutiable value of estate (a)	Gross amount payable where estate passes to—		
	Widow, widower, children, etc. (b)	Brothers, sisters, or parents	Any other person (c)
\$	\$	\$	\$
1,500 .....	Nil	Nil	Nil
3,000 .....	Nil	90	120
5,000 .....	Nil	250	300
10,000 .....	Nil	750	850
15,000 .....	Nil	1,350	1,500
20,000 .....	450	1,950	2,150
30,000 .....	1,550	3,350	3,650
50,000 .....	4,150	6,750	7,250
70,000 .....	7,350	10,750	11,450
90,000 .....	11,350	15,550	16,450
110,000 .....	16,150	21,150	22,450
130,000 .....	21,750	27,750	29,450
150,000 .....	28,150	35,350	37,450
170,000 .....	35,750	44,150	46,650
200,000 .....	49,250	59,150	62,250
250,000 .....	62,500	75,000	80,000
500,000 .....	125,000	150,000	160,000

(a) Final balance of real and personal estate of the deceased person after deducting all debts.

(b) Widow, widower, children, other issue, or step-children of the deceased person; ex-nuptial children of the deceased person if that person was a female; or wholly dependent parents of the deceased person.

(c) Or any body corporate or unincorporate.

**LAND TAX.** The *Land Tax Assessment Act, 1907-1971* authorises a tax, with certain specified exemptions, on every owner of land, and the rates of tax are prescribed by the *Land Tax Act, 1948-1969*. The following table shows the rates of tax and the amounts of tax payable, in respect of the assessment year 1971-72, on improved land and unimproved land of the values specified.

**LAND TAX—RATES OF TAX AND AMOUNTS PAYABLE**  
**ASSESSMENT YEAR 1971-72**

Unimproved value—		Improved land		Unimproved land	
Exceeding	Not exceeding	Tax on amount in first column	Tax per dollar on remainder	Tax on amount in first column	Tax per dollar on remainder
\$	\$	\$	cents	\$	cents
Nil	5,000	Nil	0·3	Nil	1·00
5,000	10,000	15	0·4	50	1·25
10,000	15,000	35	0·5	112·50	1·50
15,000	20,000	60	0·6	187·50	1·75
20,000	25,000	90	0·7	275	2·00
25,000	30,000	125	0·8	375	2·25
30,000	35,000	165	0·9	487·50	2·50
35,000	40,000	210	1·0	612·50	2·75
40,000	45,000	260	1·1	750	3·00
45,000	50,000	315	1·2	900	3·25
50,000	60,000	375	1·3	1,062·50	3·50
60,000	70,000	505	1·4	1,412·50	3·75
70,000	80,000	645	1·5	1,787·50	4·00
80,000	90,000	795	1·6	2,187·50	4·25
90,000	100,000	955	1·8	2,612·50	4·50
100,000	110,000	1,135	2·0	3,062·50	4·75
110,000	120,000	1,335	2·2	3,537·50	5·00
120,000	upwards	1,555	2·4	4,037·50	5·25

**BETTING INVESTMENT TAX.** The *Betting Investment Tax Act, 1959-1966* imposed a tax on each bet made by a bookmaker in registered premises and on each bet made through or with the Totalisator Agency Board. The amount of tax payable at 31 December 1970 was three cents on each such bet. (The Betting Investment Tax Act was repealed, with effect from 1 January 1971, by the *Betting Investment Tax Act Repeal Act, 1970*.)

**BOOKMAKERS BETTING TAX.** The *Bookmakers Betting Tax Act, 1954-1970* provides for a tax on money paid or promised as the consideration for bets made by or on behalf of bookmakers. Rates of tax are prescribed as a proportion of the turnover of a racing year (1 August to 31 July). In respect of turnover of the year ended 31 July 1972 the rates applying to on-course transactions were 2 per cent of amounts up to \$100,000 and 2½ per cent of the remainder. For off-course transactions the rate was 2¼ per cent of amounts up to \$50,000, the rate payable on each additional \$50,000 of turnover increasing by ½ per cent up to \$300,000; on turnover exceeding \$300,000 the rate was 3½ per cent.

**TOTALISATOR AGENCY BOARD BETTING TAX.** The *Totalisator Agency Board Betting Tax Act, 1960-1970* imposes a tax on all moneys paid to the Board in respect of bets made through or with the Board. The rate of tax payable at 30 June 1972 was 6 per cent.

**TOTALISATOR DUTY.** The *Totalisator Duty Act, 1905-1972* authorises the payment of duty on the takings of totalisators operated by horse-racing clubs and prescribes the rates to be paid. Differential rates apply to totalisators operated within a radius of twenty-five miles from the General Post Office, Perth and those situated outside this area. In 1971-72, the principal rates of duty payable in respect of totalisators in the former area were 9 per cent of the gross takings from win and place transactions and 5 per cent of the gross takings from wagering transactions known as 'jack pots', 'quinellas' and 'doubles'; for totalisators outside that area, the rate was 5 per cent in respect of all transactions.

**TOTALISATOR LICENCES.** The *Totalisator Regulation Act, 1911-1972* provides for the licensing of totalisators operated by horse-racing clubs. Licence fees are prescribed by regulation and are payable annually in respect of the calendar year. For the year 1972 the fee payable was \$2 for each \$2,000 (or part of \$2,000) passing through the totalisator.

**LIQUOR LICENCES.** Licences and permits authorising the holder to sell or supply fermented and spirituous liquors are granted under the provisions of the *Liquor Act, 1970-1972*. The Liquor Act, which repeals the *Licensing Act, 1911-1969*, became operative with effect from 1 July 1970. It prescribes the fees payable in respect of liquor licences and permits.

The several types of licence for which the Act provides are shown in the table *Liquor Licences in Force* on page 258. Annual licence fees, except in the case of a vigneron's licence, are assessed as a proportion of the gross amount paid for liquor purchased for licensed premises or, in the case of a wholesale spirit merchant's licence and a brewer's licence, the gross amount received for liquor sold. The proportion prescribed by the Act is  $7\frac{1}{2}$  per cent for a tavern licence or a store licence and  $5\frac{1}{2}$  per cent for other licences. An additional annual fee of \$60 is payable in respect of a wholesale spirit merchant's licence and a brewer's licence. The annual fee payable for a vigneron's licence is \$20.

**MOTOR VEHICLE REGISTRATION FEES.** The *Traffic Act, 1919-1972* provides for the registration of vehicles and prescribes the licence fees to be paid in respect of the several classes of vehicles required to be registered. Fees are based on the tare weight of the vehicle (except for motor cycles, which are subject to a standard fee). At 31 December 1972 the annual licence fee for a motor car or station wagon, for example, was \$2 where the tare weight did not exceed one cwt, the fee increasing progressively to \$39 where the tare weight was thirty-one cwt, and thereafter by \$1 for each additional cwt. The annual fee for a motor cycle was \$5. The fee payable on transfer of a licence for any vehicle was \$2.

**MOTOR VEHICLE DRIVERS' LICENCES.** The *Traffic Act, 1919-1972* authorises the issue of drivers' licences to persons of a minimum age of seventeen years, specifies other conditions to be satisfied, and prescribes the fees to be paid on application for, and issue or renewal of, a licence. At 31 December 1972 the fee payable on application was \$4, and on issue or annual renewal, \$3 (or \$1 in the case of a licence to drive a passenger vehicle).

**MOTOR VEHICLE THIRD PARTY INSURANCE SURCHARGE.** The *Motor Vehicle (Third Party Insurance Surcharge) Act, 1962-1971* imposes a surcharge on premiums paid in respect of policies of insurance with The Motor Vehicle Insurance Trust. At 31 December 1972 the rate of the surcharge was \$5 per annum.

**TAXI CONTROL BOARD LICENCES.** The *Taxi-cars (Co-ordination and Control) Act, 1963-1970*, under which the Taxi Control Board is constituted, requires that taxi-cars operating in the Metropolitan Traffic Area and other areas as declared shall be licensed, and prescribes maximum fees payable. At 31 December 1972 these fees were \$30 on the issue or annual renewal of a licence, and \$4 on the transfer of a licence.

**TRANSPORT COMMISSION LICENCES.** The *Transport Commission Act, 1966-1972* provides for the licensing of public vehicles in the categories of omnibus, commercial goods vehicle, trailer or semi-trailer, and aircraft, as well as ships engaged in the coasting trade. Licence fees are as determined from time to time by the Commissioner of Transport, subject to certain maximum charges prescribed by the Act. In the case of an omnibus for example, the fee may not exceed 6 per cent of the gross earnings, or \$10 per annum for each unit of the maximum number of passengers which it is licensed to carry, the basis of assessment being that considered by the Commissioner to be the more appropriate.

**ROAD MAINTENANCE CONTRIBUTION.** The *Road Maintenance (Contribution) Act, 1965-1970* imposes a charge on the operations, subject to specified exemptions, of any commercial goods vehicle having a load capacity of more than eight tons. At 31 December 1972 the rate of the charge was five-eighths of a cent per ton-mile calculated on the basis of the tare weight plus two-fifths of the load capacity. The Act provides that, in specified circumstances, the charge may be levied on vehicles having a load capacity of eight tons or less.

**METROPOLITAN REGION IMPROVEMENT TAX.** The *Metropolitan Region Improvement Tax Act, 1959-1966* authorises a tax, with certain specified exemptions, on every owner of land within the Metropolitan Planning Region. (The Region is coterminous with the Perth Statistical Division; see map at back of Year Book.) The rate of tax payable for the assessment year ended 30 June 1972 was one-quarter of a cent for every dollar of the unimproved value of all land chargeable with the tax.

**VERMIN RATE.** The *Vermin Act, 1918-1971*, in addition to prescribing levies imposed for the purposes of local Vermin Boards, authorises a special vermin rate, the revenue

from which is used by the Agriculture Protection Board for the control or eradication of animals, birds and insects declared to be vermin within the meaning of the Act. Subject to certain exemptions, every holding of an area of more than five acres is rateable. The rate, as prescribed by the Act, may not exceed two and one-half cents in the dollar of the unimproved capital value in the case of land held under pastoral lease, or five-twelfths of a cent in the dollar in the case of other holdings. For the assessment year 1969-70, the rate was two cents in the dollar on pastoral leases and 0·14 of a cent in the dollar on other holdings. (The *Vermin Act Amendment Act, 1970* suspends imposition of the rate with effect from 30 June 1970.)

**NOXIOUS WEEDS RATE.** The *Noxious Weeds Act, 1950-1972* contains provisions relating to noxious weeds which are generally similar to those of the Vermin Act in relation to declared vermin. The maximum rate as prescribed by the Act is, in the case of a pastoral lease, one and one-quarter cents and, in the case of other land, five twenty-fourths of a cent in the dollar of the unimproved value of the holding. In 1969-70 the rate was not levied in respect of pastoral land. The rate payable on other land was 0·07 of a cent in the dollar. (The noxious weeds rate was abolished, with effect from 1 July 1970, by the *Noxious Weeds Act Amendment Act, 1970*.)

**FRUIT FLY ERADICATION.** The *Plant Diseases Act, 1914-1969* provides for the compulsory registration of orchards and the payment of registration fees to be credited to a fund to finance the control, prevention, and eradication of the fruit fly pest. In accordance with regulations gazetted on 30 June 1972 a fee of twenty cents is payable on registration of an orchard having an area of less than one acre. This fee is levied once only. An annual fee at the rate of fifty cents per acre or part of an acre is payable in respect of an orchard of one acre or more, except that the maximum annual fee is \$6 in the case of a vineyard the fruit of which is used only for the manufacture of wine.

**PAY-ROLL TAX.** Pay-roll tax, which was formerly levied by the Commonwealth Government (see page 269), has been collected by the States since September 1971. In Western Australia the enabling legislation comprises the *Pay-roll Tax Assessment Act, 1971* and the *Pay-roll Tax Act, 1971*. The tax is payable by each employer, with certain specified exceptions, on all wages and salaries paid in excess of \$1,733·33 per month (\$20,800 per annum). The rate of tax prescribed by the *Pay-roll Tax Act, 1971* is 3½ per cent of the taxable wages.

## STATE GOVERNMENT FINANCE

Moneys collected and expended by the State Government are dealt with through accounts based on funds of three types, the Consolidated Revenue Fund, the General Loan Fund and Trust Funds. The transactions of these Funds are summarised in the Public Accounts prepared each year by the Treasurer and in the Financial Statement presented to the Parliament by the Treasurer in introducing the annual budget.

Public finance statistics published by the States are limited generally to dissections of the revenue, loan and debt transactions of State Governments and local government authorities. However, work has been proceeding in recent years on the development of a new system of public authority finance statistics with the aim of providing data on the financial transactions of all public authorities. This information is required by government departments and many other users for economic analysis and social inquiries, and for a wide variety of other purposes.

Although comprehensive statistics compiled on the new basis have not yet been published for the several States, a limited analysis is available in the printed bulletin *Public Authority Finance, 1969-70* issued March 1972 by the Commonwealth Statistician, Canberra. More recent figures are contained in the mimeographed release *Public Authority Finance : State and Local Authorities, 1971-72*, published September 1972 by the Commonwealth Statistician.

### Consolidated Revenue Fund

All State revenues, apart from those which are credited to trust or special accounts, are paid into the Consolidated Revenue Fund. Disbursements from the Fund are authorised by the Parliament, each year under an Appropriation Act, or under Special Acts subject to periodical review. Among the permanent appropriations by Special Acts are such items as the salaries of the Governor of Western Australia, the Judges of the Supreme Court and Members of Parliament, interest charges on the public debt, contributions to the Public Debt Sinking Fund, payments to the State Superannuation Fund and the annual subsidy to the University of Western Australia.

The principal sources of revenue, as shown in the following table, are the grants and other financial assistance received from the Commonwealth Government; the income of public utilities; taxation; departmental revenues from reimbursements, fees and services; and territorial revenues.

Payments made to the State of Western Australia by the Commonwealth Government during each of the years from 1966-67 to 1970-71 appear in the table on page 267. Not all of these moneys are paid to the State Consolidated Revenue Fund, as some of them are provided for specific purposes and are therefore paid to trust or other accounts.

CONSOLIDATED REVENUE FUND—SOURCES OF REVENUE  
(\$'000)

Nature of revenue	1966-67	1967-68	1968-69	1969-70	1970-71
Collected by the State—					
Taxation (a) ....	27,536	34,916	41,602	50,865	48,434
Territorial revenues (b) ....	7,655	11,845	17,301	23,633	32,187
Public utilities—					
Railways ....	48,194	51,183	49,163	57,200	61,820
Water supplies, sewerage and drainage ....	4,073	4,500	4,538	5,602	6,476
Other public utilities ....	520	543	706	120	54
Departmental revenue—Reimbursements, fees, etc. ....	31,461	33,135	33,035	36,905	45,583
Other ....	1,959	1,999	2,115	2,538	2,301
Total ....	121,398	138,121	148,460	176,863	196,855
Received from the Commonwealth (c)—					
Interest on State debts ....	947	947	947	947	947
Special grants ....	19,406	15,518	582	.....	.....
Financial assistance grants ....	86,396	96,152	(d) 123,796	(d) 138,835	(d) 163,313
Special financial assistance grants ....	.....	.....	1,296	1,545	5,030
Debt charges assistance grants ....	.....	.....	.....	.....	1,106
Total ....	106,748	112,617	126,621	141,326	170,396
GRAND TOTAL ....	228,146	250,738	275,081	318,189	367,252

(a) For further details, see table *State Government Taxation—Net Amounts Collected* on page 276. (b) Comprises revenue from royalties, sales, leases and licences relating to land, mining and timber. (c) See table on page 267. (d) Includes payments in place of a Special Grant: 1968-69, \$15.5 million; 1969-70, \$15.5 million; 1970-71, \$12.5 million (see letterpress *The Commonwealth Grants Commission* on page 266).

In the five-year period ended 30 June 1971, revenues collected by the State amounted to \$782 million. Of this total \$295 million (37.7 per cent) came from public utilities, the principal contributor being government railways which accounted for \$268 million. Departmental revenues amounted to \$180 million, or 23.0 per cent of the total collected by the State. The main contributing Departments in 1970-71 were Treasury (\$24.8 million, including \$23.2 million on account of interest and sinking funds), Harbour and Light (\$2.82 million), Police (\$1.88 million), Printing (\$1.64 million), Public Works (\$1.63 million), Forests (\$1.46 million), Education (\$1.38 million), Companies Registration Office (\$1.23 million), Public Health (\$1.22 million), and Agriculture (\$1.17 million).

The figures appearing against the item 'Taxation' comprise Consolidated Revenue Fund receipts from probate and succession duties, stamp duties, land tax, liquor licences, totalisator duty and licences, bookmakers betting tax, bookmakers' licences, Totalisator Agency Board betting tax, betting investment tax, motor vehicle third party insurance surcharge, and certain licences in addition to those already mentioned. Some account of the rates and conditions applying to the several taxes and other levies is given in the section *State Taxation* on pages 271-4.

Territorial revenues are those derived from royalties, sales of Crown land, and the issue of leases, licences and permits in connection with land, mining and timber. Reference to the several types of tenure in these categories will be found in Chapter VII, Part 1—*Land Tenure and Settlement*.

There has been a considerable increase in recent years in revenue from mining royalties, due principally to greatly accelerated exploitation of iron-ore and nickel deposits and the commencement of oil drilling on a commercial scale. Reference to these developments will be found in the final section, *Mining*, of Chapter VIII, Part 1. Collections of royalties on all minerals amounted to \$2.64 million in 1966-67, \$6.24 million in 1967-68, \$11.0 million in 1968-69, \$15.7 million in 1969-70, and \$22.3 million in 1970-71. Total revenue from this source in 1971-72 was \$25.2 million, comprising \$22.4 million from iron ore, \$1.54 million from crude petroleum, \$0.55 million from nickel, \$0.37 million from, bauxite, \$0.11 million from salt, and \$0.17 million from all other minerals.

The following table gives details of net amounts of tax collected by the State Government in the five-year period ended 30 June 1971. Payments to trust or special accounts as well as to Consolidated Revenue are shown.

STATE GOVERNMENT TAXATION—NET AMOUNTS COLLECTED (a)  
(\$'000)

Nature of tax	1966-67	1967-68	1968-69	1969-70	1970-71
<b>Paid to Consolidated Revenue Fund—</b>					
Stamp duties not elsewhere included	11,681	16,669	21,173	23,832	20,717
Probate and succession duties	4,765	5,162	6,297	9,399	8,256
Land	3,514	4,702	4,746	6,737	7,201
Racing (b)	3,122	3,318	3,802	4,389	4,791
Liquor	2,323	2,566	2,848	3,262	3,753
Motor vehicle—					
Vehicle registration fees and taxes	73	81	277	767	667
Drivers' and riders' licences and fees	693	756	838	881	915
Stamp duty on registration and transfer of motor vehicles	1,306	1,555	1,670	1,978	2,102
Third party insurance surcharge	661	700	755	816	873
Licences not elsewhere included	324	330	355	383	431
<b>Total</b>	<b>28,462</b>	<b>35,839</b>	<b>42,761</b>	<b>52,443</b>	<b>49,706</b>
<b>Paid to trust funds—</b>					
Stamp duties not elsewhere included	72	84	94	102	124
Totalisator duty (c)	97	110	131	164	....
Motor vehicle (d)—					
Vehicle registration fees and taxes (e)	5,766	6,196	6,710	7,277	8,167
Drivers' and riders' licences and fees	545	588	641	681	715
Road transport (f)	509	689	863	918	1,405
Road maintenance contributions	2,540	2,873	3,210	3,624	3,990
Metropolitan region improvement	550	1,101	1,656	1,325	1,264
Vermis	441	534	593	770	(g) 111
Noxious weeds	140	205	235	352	(h) 54
Licences and taxes not elsewhere included (i)	224	250	313	402	382
<b>Total</b>	<b>10,886</b>	<b>12,630</b>	<b>14,447</b>	<b>15,615</b>	<b>16,212</b>
<b>GRAND TOTAL</b>	<b>39,348</b>	<b>48,469</b>	<b>57,207</b>	<b>68,058</b>	<b>65,918</b>

(a) For rates and conditions applying to the several taxes, see pages 271-4. (b) Includes revenue from Betting Investment Tax, Bookmakers Betting Tax, Totalisator Agency Board Betting Tax, Totalisator Duty, and Totalisator Licences. (c) Part collections only; amounts paid to Consolidated Revenue Fund are included under *Racing* above. (d) See letterpress *Finance for Roads*, Chapter IX, Part 3. (e) For amounts collected and retained by local government authorities, see table on page 284. (f) Includes revenue from Taxi Control Board Licences and Transport Commission Licences. (g) Vermin rate suspended with effect from 30 June 1970; amount shown represents arrears. (h) Noxious weeds rate abolished with effect from 1 July 1970; amount shown represents arrears. (i) Includes fees collected under the Plant Diseases Act; see letterpress *Fruit Fly Eradication* on page 274.

The amounts shown in the preceding table are grouped according to the nature of the tax rather than the method of collection. Thus stamp duties on betting tickets and revenue from bookmakers' licences and totalisator licences are included under the heading 'Racing' and not under 'Stamp duties' or 'Licences'. It will be seen that, although the figures represent net collections, the aggregates of the amounts shown as payments to the Consolidated Revenue Fund exceed those appearing as taxation revenue (gross) in the table on page 275. This is accounted for by the fact that some types of licences and other fees are not included under the heading of taxation in the Public Accounts, earnings from them being credited to departmental revenue. Items dealt with in this way include drivers' and riders' licences and fees as shown in the first part of the table,

as well as licences relating to firearms; factories and shops; fishing, pearling and game; and marine collectors. Other moneys paid to departmental revenue are fees collected under the provisions of the Companies Act and the Business Names Act.

**CONSOLIDATED REVENUE FUND**  
**EXPENDITURE ACCORDING TO NATURE OF SERVICE**  
 (\$'000)

Nature of expenditure	1966-67	1967-68	1968-69	1969-70	1970-71
<b>Expenditure on public utilities—</b>					
Railways .....	45,397	52,173	51,377	56,956	62,937
Water supplies, sewerage and drainage .....	6,779	7,583	11,512	13,649	16,202
State batteries .....	474	447	512	498	578
Other .....	532	525	616	64	...
<b>Total .....</b>	<b>53,182</b>	<b>60,728</b>	<b>64,016</b>	<b>71,166</b>	<b>79,717</b>
<b>Departmental expenditure—</b>					
Agriculture .....	3,967	4,359	5,013	5,824	6,829
Audit .....	268	289	306	342	401
Automatic Data Processing Centre .....	...	143	73	80	211
Bush Fires Board .....	134	128	149	203	208
Chief Secretary .....	420	457	459	514	470
Child Welfare .....	2,130	2,272	2,649	3,476	4,818
Crown Law .....	2,596	2,831	3,232	3,864	4,528
Education .....	36,746	41,224	46,441	55,839	66,341
Electoral .....	88	282	111	142	403
Factories .....	88	100	104	123	155
Fisheries and Fauna .....	434	513	595	747	929
Forests (a) .....	1,402	1,577	1,600	1,575	1,745
Government Stores .....	496	552	605	697	731
Harbour and Light .....	1,514	1,896	2,041	1,910	2,209
Industrial Commission .....	131	139	160	185	214
Industrial Development .....	866	970	874	1,009	1,240
Inspection of Machinery .....	...	...	...	194	227
Labour .....	100	108	125	139	205
Lands and Surveys .....	3,087	3,535	3,857	4,309	4,237
Library Board, Museum, and Art Gallery .....	870	1,008	1,130	1,421	1,803
Local Government .....	148	180	181	201	254
London Agency .....	234	214	199	229	246
Mental Health Services .....	4,215	4,800	5,304	6,393	7,794
Metropolitan (Perth) Passenger Transport Trust—Recoup of loss .....	618	552	925	923	1,791
Mines .....	2,011	2,495	2,372	2,909	3,696
Native Welfare .....	2,245	2,670	3,056	3,349	3,328
Observatory .....	52	55	58	76	88
Police .....	6,119	6,879	7,936	9,396	10,811
Premier's Department .....	246	298	365	333	367
Printing .....	978	950	1,188	1,337	1,479
Prisons .....	1,271	1,677	2,012	2,475	3,353
Public Health .....	22,213	24,494	28,310	34,950	44,781
Public Service Commissioner .....	182	200	223	278	342
Public Works .....	7,252	8,092	9,404	10,805	13,308
Registry and Friendly Societies .....	122	133	127	152	180
Superannuation Board .....	60	66	66	93	111
Taxation .....	525	600	666	816	2,389
Tourist Development Authority .....	309	345	606	649	763
Town Planning .....	240	296	298	388	494
Treasury .....	471	488	547	640	446
University of Western Australia—Additional payments (a) .....	2,901	3,460	3,509	4,441	4,929
War Service Land Settlement Scheme—Contribution to capital losses .....	1,400	1,400	1,400	1,297	...
Western Australian Coastal Shipping Commission—Recoup of loss .....	2,357	2,629	3,251	3,651	4,796
Western Australian Institute of Technology .....	567	1,382	1,830	2,933	3,861
Other .....	12,613	9,143	11,520	13,534	18,435
<b>Total .....</b>	<b>124,686</b>	<b>135,881</b>	<b>154,877</b>	<b>184,841</b>	<b>225,946</b>
<b>Expenditure under special Acts—</b>					
Agriculture Protection Board Act .....	441	534	593	770	243
Forests Act (b) .....	2,874	2,948	2,775	2,744	2,696
Loan Acts (public debt)—					
Interest .....	34,217	36,032	38,709	42,539	44,611
Sinking fund contributions .....	7,445	7,832	8,373	8,887	9,566
Mine Workers' Relief Act .....	45	49	52	57	68
Parliamentary salaries and allowances .....	719	716	844	872	863
State Transport Co-ordination Act .....	...	50	77	115	142
Superannuation Acts—Government employees .....	2,855	3,256	3,785	4,557	5,125
University of Western Australia Act (b) .....	500	500	500	500	500
Other .....	843	999	1,109	1,341	1,592
<b>Total .....</b>	<b>49,939</b>	<b>52,916</b>	<b>56,817</b>	<b>62,383</b>	<b>65,406</b>
<b>Other expenditure....</b>	<b>366</b>	<b>385</b>	<b>427</b>	<b>510</b>	<b>553</b>
<b>GRAND TOTAL .....</b>	<b>228,174</b>	<b>249,909</b>	<b>276,137</b>	<b>318,901</b>	<b>371,620</b>

(a) For expenditure under Special Acts, see below.

(b) For additional payments, see *Departmental expenditure* above.

In the five-year period ended 30 June 1971, expenditure under the heading 'Departmental' amounted to \$826 million, or 57·2 per cent of all expenditure from the Consolidated Revenue Fund. Education (\$247 million) and Public Health (\$155 million) together accounted for 48·6 per cent of Departmental expenditure. Other large items were those attributable to Public Works (\$48·9 million), Police (\$41·1 million), Mental Health Services (\$28·5 million), Agriculture (\$26·0 million), and Lands and Surveys (\$19·0 million).

Expenditure on public utilities (\$329 million) amounted to 22·8 per cent of the total, the predominant item being Railways (\$269 million).

Commitments under Special Acts accounted for \$287 million, or 19·9 per cent of all expenditure. The principal amounts were those relating to Loan Acts (\$238 million) and legislation providing pensions for government employees (\$19·6 million).

The amount paid under the *Forests Act, 1918-1969* represents nine-tenths of the net annual revenue of the Department and is credited to a fund for forests improvement and reforestation. The *University of Western Australia Act, 1911-1970* provides for the payment of an annual subsidy of \$500,000 and 'such additional amounts as may be appropriated by Parliament from time to time'. In 1970-71 additional payments amounting to \$4·93 million were made from Departmental expenditure. Further details of University finance are given in Chapter V, Part 1.

The particulars shown in the preceding table and in the table on page 275 are an abridged form of the presentation given in the Public Accounts. It is, of course, possible to present the figures of income and expenditure of the Consolidated Revenue Fund on other bases for particular purposes. One such grouping is a dissection according to function as in the following table. The classification used has been summarised for the purposes of this table from a more detailed statement appearing in *Statistics of Western Australia—Finance*.

CONSOLIDATED REVENUE FUND  
REVENUE AND EXPENDITURE CLASSIFIED ACCORDING TO FUNCTION  
(\$'000)

Function	1969-70			1970-71		
	Revenue	Expenditure		Revenue	Expenditure	
		Gross	Net		Gross	Net
Legislation .....	2	1,690	1,689	2	1,949	1,947
General administration and services, not elsewhere included .....	197,424	10,561	Cr. 186,861	224,396	12,554	Cr. 211,842
Law, order and public safety .....	3,037	16,641	13,605	4,455	20,069	15,614
Education .....	1,219	68,664	67,444	1,382	86,333	84,951
Cultural and recreational facilities .....	17	3,206	3,190	6	3,639	3,633
Public health .....	1,869	42,279	40,410	2,349	53,609	51,260
Welfare .....	478	8,373	7,896	511	9,168	8,657
War and defence .....	....	115	115	....	89	89
Immigration .....	117	500	383	115	560	445
Regulation of trade and industry and industrial safety .....	645	1,200	555	689	1,408	719
Development and conservation of natural resources and assistance to industry .....	34,023	42,372	8,349	44,427	47,363	2,936
Transport and communication .....	59,732	66,139	6,407	64,846	74,472	9,626
Power, fuel and light .....	233	160	Cr. 74	....	25	25
Housing .....	4	94	90	....	116	116
Banking and insurance .....	415	104	Cr. 310	203	116	Cr. 87
Public debt charges .....	18,167	51,875	33,708	23,196	54,652	31,456
Miscellaneous .....	808	4,927	4,119	674	5,498	4,823
<b>Total .....</b>	<b>318,189</b>	<b>318,901</b>	<b>(a) 712</b>	<b>367,252</b>	<b>371,620</b>	<b>(b) 4,368</b>

(a) Published Budget deficit, \$711,858.

(b) Published Budget deficit, \$4,368,120.

The table is designed to show (in respect of the Consolidated Revenue Fund only) the gross and net cost of each function of Government irrespective of the Department or Departments administering these functions. In cases where an activity is such that

it involves more than one function, each of its components has been included in that function which is considered to be the most appropriate. For example, in classifying expenditure attributable to child welfare, the custody and care of delinquent children is included under 'Law, order and public safety' and the education of children in institutions under 'Education', only the balance being assigned to the item 'Welfare'.

The amount shown as revenue under the heading 'General administration and services, not elsewhere included' is more than three-fifths of the total. The item includes receipts from the Commonwealth and taxation collected by the State amounting in all to \$192.5 million in 1969-70 and \$219.3 million in 1970-71.

By a provision of the *State Government Insurance Office Act, 1938-1965* the State Government Insurance Office is required to pay each year to the Treasury the equivalent of the amount of State taxes on profits or income that any insurance company, other than a life insurance company, would be liable to pay. The amounts shown as revenue under

'Banking and insurance' include \$149,832 in 1969-70 and \$203,181 in 1970-71 in relation to such payments. The expenditure under the heading of 'Banking and insurance' comprises mainly reimbursements from the Treasury to The Rural and Industries Bank of Western Australia of administration expenses incurred in the conduct of its Government Agency Department. These recoups amounted to \$104,347 in 1969-70 and \$116,221 in 1970-71.

### General Loan Fund and Public Debt

**General Loan Fund.** The first Loan Act in Western Australia was assented to in 1872 and gave authority for the raising of a loan for public works, mainly in connection with harbours and rivers, for the purchase of the Perth-Fremantle telegraph line and for railway surveys in the Champion Bay district. A General Loan Fund was established by the Loans Consolidation Act of 1896 which provided for the merging in the Fund of all loan balances unexpended at 30 June 1896, and since that time the proceeds of each new loan have been paid to the credit of the General Loan Fund. Details of net loan expenditure from 1872 to 30 June 1971 are given in the following table.

NET LOAN EXPENDITURE  
(\$'000)

Nature of expenditure	From 1872 to 30 June 1966	1966-67	1967-68	1968-69	1969-70	1970-71	From 1872 to 30 June 1971
Public works, services, etc.—							
Railways, tramways and omnibuses ....	178,892	9,068	7,750	10,547	6,331	7,194	219,782
Electricity supply ....	44,876	2,427	4,542	5,679	4,566	27	62,118
Harbours and rivers ....	49,646	1,746	2,402	1,190	2,055	2,202	59,242
Public buildings—							
Schools ....	67,923	8,450	8,580	9,585	11,756	11,998	118,293
Hospitals ....	51,225	6,021	6,365	6,872	8,407	8,178	87,068
Other ....	32,132	3,759	3,871	3,659	4,464	5,372	53,257
Housing (a) ....	38,501	3,082	2,648	2,523	3,322	5,538	55,614
Water supplies, sewerage, drainage and irrigation ....	172,494	13,642	14,552	12,560	13,330	15,176	241,754
Development of goldfields and mineral resources ....	16,358	128	334	Cr. 26	Cr. 105	Cr. 48	16,641
Development of agriculture ....	57,901	443	697	682	916	593	61,231
Miscellaneous ....	76,544	2,250	1,436	1,587	4,462	7,409	93,688
<b>Total</b> ....	<b>786,492</b>	<b>51,015</b>	<b>53,177</b>	<b>54,859</b>	<b>59,504</b>	<b>63,640</b>	<b>1,068,687</b>
Other expenditure—							
Discounts and flotation expenses ....	8,123	735	241	109	Cr. 157	Cr. 121	8,930
Revenue deficits ....	37,907	....	....	....	1,227	285	39,420
<b>Total</b> ....	<b>46,030</b>	<b>735</b>	<b>241</b>	<b>109</b>	<b>1,070</b>	<b>165</b>	<b>48,349</b>
<b>GRAND TOTAL</b> ....	<b>832,521</b>	<b>51,751</b>	<b>53,418</b>	<b>54,968</b>	<b>60,575</b>	<b>63,805</b>	<b>1,117,037</b>

(a) Excludes expenditure from Commonwealth loans under Commonwealth-State Housing Agreement.

The principal net expenditures from the General Loan Fund during the five years ended 30 June 1971 were those relating to Public buildings (\$107·3 million), Water supplies, sewerage, drainage and irrigation (\$69·3 million), Railways, tramways and omnibuses (\$40·9 million), Electricity supply (\$17·2 million), Housing (\$17·1 million), Harbours and rivers (\$9·60 million) and Development of agriculture (\$3·33 million).

Of the total expenditure of \$107·3 million on *Public buildings*, \$50·4 million was spent on the construction of new schools, additions and improvements to existing schools, and technical education institutions, including The Western Australian Institute of Technology. Work on new regional hospitals at Bunbury, Geraldton and Northam, a new hospital at Bentley, new buildings at the Perth Medical Centre, mental health buildings including a training centre at Guildford, and other new or improved hospitals in both metropolitan and country areas accounted for \$35·8 million. Other expenditure included the cost of work on the construction of a new administrative office building to house Government Departments, the erection of regional gaols at Albany and Bunbury and new police headquarters at Perth, the new Police Academy at Maylands, new court houses and police stations, child welfare institutions, including a rehabilitation centre for girls at Bentley, native welfare buildings, government offices at a number of centres, a new museum building, landscaping of Parliament House grounds, construction of the Noalimba Reception Centre for migrants at Bull Creek, and additions to homes for the aged and infirm.

Expenditure on *Water supplies, sewerage and drainage* included the cost of work on the Goldfields and Agricultural Water Supply, the Great Southern Towns Water Supply and the Country Towns Water Supply, duplication of the Serpentine trunk main, the Ord River irrigation project, developmental and improvement work in northern and south-west irrigation districts including the completion of Waroona and Glen Mervyn Dams, sewerage works construction and extension of services in the metropolitan area and in country towns, water supplies for towns and stock routes in northern and north-western areas and maintenance and improvements to drainage systems throughout the State. An account of progress in the field of water conservation and supply is given in Chapter VII, Part 2.

Expenditure under the heading of *Railways, tramways and omnibuses* included amounts spent on maintenance and renewals of permanent way, new rolling stock, land resumptions for, and construction of, marshalling yards at Kewdale, and contribution to costs of railway standardisation. Advances were made to the Metropolitan (Perth) Passenger Transport Trust for the purchase of new omnibuses. Reference is made to the operations of the Trust in Chapter IX, Part 3.

Expenditure attributed to *Electricity supply* includes amounts spent by the State Electricity Commission on power stations at Muja on the Collie coalfield and at Kwinana. The figures do not represent all of the Commission's expenditure as they refer only to the General Loan Fund and therefore exclude moneys available to the Commission from its own public loan raisings. The activities of the State Electricity Commission are described in Chapter VIII, Part 2.

The amounts shown under the heading of *Housing* consist mainly of additional capital provided to The State Housing Commission for the erection of houses, land acquisition and development, and assistance to home builders. The expenditure, which relates only to the General Loan Fund, does not, of course, include moneys applied to the Commission's purposes from Commonwealth loans under the Commonwealth-State Housing Agreement. Reference to the Agreement and to the work of The State Housing Commission will be found in Chapter V, Part 4.

The principal works under the heading of *Harbours and rivers* were those undertaken at the Port of Fremantle, including the building of a container terminal, the development of the outer harbour to serve the industrial complex at Kwinana, the reconstruction of quays, dredging, and the installation of new mechanical equipment. Among other works were the construction of breakwaters and land-backed berths at Bunbury and Esperance, harbour improvements and a new berth at Albany, improvements at ports on the north and north-west coasts including a new berth and improvements at Port Hedland, and the construction of a fishing-boat harbour at Fremantle.

Expenditure under the heading of *Development of agriculture* includes the cost of additions to the buildings and laboratories of the Department of Agriculture at South Perth including a State Herbarium, improvements to research stations operated by the Department and to the Agricultural College at Muresk, and land regeneration at the Ord River.

Expenditure on the *Development of goldfields and mineral resources* relates to moneys spent on assistance to prospectors, loans to mine owners, drilling in connection with mineral exploration and miscellaneous works at various State Batteries. It also includes advances on account of the Wundowie Charcoal Iron and Steel Industry for expenditure on capital works.

For the five-year period ended 30 June 1971 the expenditure described as *Miscellaneous* aggregated \$17.1 million, of which \$4.99 million was spent on improvements to the facilities of The Midland Junction Abattoir Board. New buildings and alterations to existing buildings accounted for \$3.77 million in respect of the University of Western Australia, and \$3.11 million in respect of The Western Australian Institute of Technology. An amount of \$3.16 million was used to finance advances by The Rural and Industries Bank of Western Australia to primary and secondary industries. The remaining expenditure relates to such items as loans and grants to a number of public bodies, pine planting and forest regeneration, assistance to industry including the resumption of land for industrial purposes and services to industry, and advances to the Western Australian Tourist Development Authority for improvement of tourist facilities.

The following table shows the amounts of loan raisings and redemptions by or on behalf of the State Government during the five-year period ended 30 June 1971.

LOAN RAISINGS AND REDEMPTIONS  
(\$'000)

Particulars	1966-67	1967-68	1968-69	1969-70	1970-71
<b>Raisings—</b>					
By Commonwealth Government—					
Loans subscribed in Australia ....	51,731	53,404	54,967	60,517	48,685
<b>Total, Raisings ....</b>	<b>51,731</b>	<b>53,404</b>	<b>54,967</b>	<b>60,517</b>	<b>48,685</b>
<b>Redemptions—</b>					
By National Debt Commission—					
Australian securities ....	7,130	7,403	4,480	6,749	8,413
London securities ....	1,059	1,139	2,659	6,891	2,439
New York securities ....	422	425	411	380	441
Canadian securities ....	33	33	8	26	24
Netherlands securities ....	....	36	36	36	36
<b>Total, Redemptions ....</b>	<b>8,644</b>	<b>9,036</b>	<b>7,594</b>	<b>14,082</b>	<b>11,352</b>
<b>Excess of raisings over redemptions ....</b>	<b>43,087</b>	<b>44,368</b>	<b>47,374</b>	<b>46,435</b>	<b>37,333</b>

**Public Debt.** Western Australia's gross public debt at 30 June 1971, was \$924 million, compared with \$706 million at 30 June 1966, representing an increase of \$219 million during the five years. Total raisings in the financial years 1966-67 to 1970-71 amounted to \$269 million and the value of securities repurchased and redeemed in Australia, London, New York, Canada and the Netherlands by the National Debt Commission was \$50.7 million.

The following table presents a summary of public debt transactions in each year of the period between 30 June 1966 and 30 June 1971 and provides a reconciliation between public debt and the aggregate net loan expenditure to each of those dates as shown in the table on page 279.

Reference is made on page 265 to the Sinking Funds established by the Financial Agreement of 1927 designed to redeem the public debts of the States. Transactions of the National Debt Sinking Fund in respect of the public debt of Western Australia during the five-year period ended 30 June 1971 are shown in the second table on page 282.

### NET LOAN EXPENDITURE AND PUBLIC DEBT (\$'000)

Particulars	At 30 June—					
	1966	1967	1968	1969	1970	1971
<b>Debits—</b>						
Aggregate net loan expenditure ....	(a) 832,521	884,272	937,690	992,657	1,053,232	(a) 1,117,037
Inscribed stock issued under Agricultural Bank Act ....	3,132	3,132	3,132	3,132	3,132	3,132
The Rural and Industries Bank of Western Australia debenture stock (b) ....	2,134	2,134	2,134	2,134	2,134	2,134
Unexpended balance of General Loan Fund ....	38	18	4	3	...	3,507
<b>Total, Debits</b> ....	<b>837,825</b>	<b>889,556</b>	<b>942,960</b>	<b>997,927</b>	<b>1,058,498</b>	<b>1,125,810</b>
<b>Credits—</b>						
Aggregate redemptions ....	132,310	140,954	149,990	157,584	171,666	183,018
Commonwealth Capital Grants (c) ....	...	...	...	...	...	18,680
Bank overdraft ....	...	...	...	...	54	...
<b>Total, Credits</b> ....	<b>132,310</b>	<b>140,954</b>	<b>149,990</b>	<b>157,584</b>	<b>171,720</b>	<b>201,698</b>
<b>Balance, Gross public debt</b> ....	<b>705,514</b>	<b>748,601</b>	<b>792,969</b>	<b>840,343</b>	<b>886,778</b>	<b>924,111</b>
<b>Amount of public debt maturing in—</b>						
Australia ....	632,794	677,807	723,808	774,295	835,541	875,814
London ....	64,796	63,737	62,599	59,940	46,070	43,631
New York ....	6,417	5,582	5,156	4,746	3,867	3,425
Canada ....	584	551	517	510	484	460
Netherlands ....	539	539	503	467	432	396
Switzerland ....	385	385	385	385	385	385
<b>Total, Gross public debt</b> ....	<b>705,514</b>	<b>748,601</b>	<b>792,969</b>	<b>840,343</b>	<b>886,778</b>	<b>924,111</b>
<b>Sinking Fund available for further debt redemption (d) ....</b>	<b>267</b>	<b>216</b>	<b>408</b>	<b>3,015</b>	<b>182</b>	<b>582</b>
<b>Net public debt</b> ....	<b>705,248</b>	<b>748,386</b>	<b>792,562</b>	<b>837,329</b>	<b>886,597</b>	<b>923,530</b>

(a) From table on page 279. (b) Representing stock issued in connection with the acquisition by the Government of the assets of The Midland Railway Company of Western Australia Limited. (c) As provided by the *States Grants (Capital Assistance) Act 1970*. (d) Representing balance of Sinking Fund held by National Debt Commission.

### SINKING FUND TRANSACTIONS (\$'000)

Particulars	1966-67	1967-68	1968-69	1969-70	1970-71
Balance at beginning of year ....	267	216	408	3,015	182
<b>Receipts—</b>					
Contributions by State ....	7,379	7,848	8,379	8,893	9,634
Contributions by Commonwealth ....	1,844	1,986	2,105	2,258	2,384
Interest ....	7	17	(a)	97	23
<b>Total, Receipts</b> ....	<b>9,230</b>	<b>9,851</b>	<b>10,483</b>	<b>11,249</b>	<b>12,041</b>
<b>Expenditure—</b>					
Redemptions and repurchases (b) in—					
Australia ....	7,130	7,403	4,480	6,749	8,413
London ....	1,191	1,283	2,510	6,512	2,248
New York ....	895	860	818	724	882
Canada ....	65	60	14	42	45
Netherlands ....	...	54	54	54	54
<b>Total, Expenditure</b> ....	<b>9,281</b>	<b>9,659</b>	<b>7,876</b>	<b>14,082</b>	<b>11,642</b>
Balance at end of year ....	216	408	3,015	182	582

(a) Less than \$500.

(b) At net cost including exchange.

### Trust Funds

Trust funds are divided into three groups, governmental, private, and those which deal with moneys advanced by the Commonwealth Government for specific purposes. A detailed list of trust fund transactions is published quarterly in the *Statement of the Receipts and Disbursements of Western Australia*. The following table contains a summary of the more important items selected from this list.

SUMMARY OF TRUST FUNDS—RECEIPTS AND EXPENDITURE  
(\$'000)

Title of account	1969-70		1970-71		Balance of fund at 30 June 1971
	Receipts	Expenditure	Receipts	Expenditure	
<b>Governmental trust funds—</b>					
Agriculture Protection Board .....	832	630	633	822	112
Country High School Hostels Authority.....			783	439	344
Crown Law Advance .....	12,408	12,485	12,527	12,630	168
Forests Improvement and Reforestation .....	4,853	5,051	5,369	4,847	779
Hospital Buildings and Equipment .....	2,284	1,830	4,761	5,872	195
Hospital Fund Contributions .....	41,625	41,625	47,534	47,534	....
<b>Housing—</b>					
Government Employees' Housing Authority .....	2,542	2,751	4,103	4,020	126
State Housing Commission .....	32,591	35,619	37,584	39,386	6,518
Industrial Lands Development .....	....	....	1,613	1,031	583
<b>Insurance—</b>					
Government Fire and Marine Insurance .....	1,823	1,841	2,191	2,063	176
Government Workers' Compensation .....	1,370	1,515	1,310	1,162	367
Railway Accident and Fire Insurance .....	446	252	459	701	264
State Insurance .....	12,782	12,663	14,565	14,647	71
Karratha Development—Reticulation Services .....	509	358	1,010	874	287
Library Board of Western Australia .....	967	953	1,129	1,110	37
Main Roads Department Payroll Surcharge .....	1,062	957	1,251	1,205	355
Metropolitan Region Improvement .....	4,212	4,727	3,903	3,643	45
Milk Board .....	486	495	349	352	19
National Parks Board .....	373	384	430	429	2
Native Welfare Administration .....	3,912	3,884	3,574	3,538	64
Noxious Weeds .....	946	725	496	744	278
Plant Hire .....	1,959	1,831	2,235	2,472	490
Public Debt Sinking Fund .....	....	2,833	400	....	582
Public Works Department Payroll Surcharge .....	1,521	1,366	1,763	1,498	1,146
Railways Rolling Stock Replacement .....	1,067	1,453	1,036	726	354
<b>Roads—</b>					
Main Roads .....	67,704	67,529	91,990	90,915	6,577
Main Roads—New Buildings .....	100	1,662	1,030	1,768	25
Roads Maintenance Trust .....	3,660	3,593	4,030	4,170	138
Rural and Industries Bank .....	3,296	2,879	2,748	3,367	98
State Electricity Commission Loans—Sinking Fund .....	224	469	523	339	921
Tourist Fund .....	674	656	1,081	1,200	459
Transport Commission .....	2,505	2,363	3,285	2,747	961
Vermion Act .....	1,593	1,461	1,103	1,562	662
Western Australian Museum .....	404	381	684	600	136
Other .....	5,771	5,395	6,970	4,764	14,228
<b>Total .....</b>	<b>216,500</b>	<b>222,617</b>	<b>264,452</b>	<b>263,180</b>	<b>37,565</b>
<b>Funds financed from Commonwealth grants and advances—</b>					
Aboriginal Advancement .....	1,450	1,527	1,749	1,729	62
Science Buildings and Equipment—					
Government Schools .....	532	500	541	568	25
Independent Schools .....	391	394	415	473	(a)
<b>Housing—</b>					
Commonwealth-State Housing Agreement .....	25,835	29,422	35,205	38,405	763
Home Builders .....	7,312	6,065	4,114	6,576	96
War Service Homes .....	4,455	4,443	5,134	5,147	3
Non-productive Capital Works .....	....	....	18,680	18,680	....
Ord River Dam Construction .....	5,891	5,984	5,747	5,745	Dr. 84
Petroleum Products Subsidy .....	3,851	3,749	4,528	4,346	370
Pharmaceutical Benefits .....	2,320	2,320	2,869	2,869	....
<b>Roads—</b>					
Beef Cattle Roads .....	1,493	1,501	1,014	1,160	35
Commonwealth Aid Roads Acts .....	42,349	38,995	39,149	38,336	5,189
Softwood Forestry Agreement .....	859	600	424	1,033	....
South-West Region Water Supplies .....	2,000	2,000	1,815	1,815	....
Technical Trainings—Buildings and Equipment .....	976	1,100	810	751	9
Water Resources .....	316	316	252	252	....
Other .....	3,074	2,717	5,678	5,261	1,715
<b>Total .....</b>	<b>103,103</b>	<b>101,633</b>	<b>128,123</b>	<b>133,147</b>	<b>8,183</b>
<b>Private trust funds—</b>					
Charitable Institutions .....	335	316	(a)	1	1
Clerk of Courts .....	7,464	7,197	7,894	8,036	263
Coal Mine Workers' Pensions .....	604	595	637	646	(a)
Country High School Hostels Authority .....	553	500	....	225	....
Public Trustee Common Fund .....	10,333	10,791	10,248	10,221	338
Superannuation Fund .....	13,090	13,402	15,130	14,681	451
Superannuation Investment Reserve .....	4,723	26	5,115	66	46,142
Workers' Compensation in Suspense .....	510	522	580	556	66
Other .....	5,886	5,275	5,245	5,660	6,203
<b>Total .....</b>	<b>43,498</b>	<b>38,624</b>	<b>44,848</b>	<b>40,092</b>	<b>53,462</b>
<b>GRAND TOTAL .....</b>	<b>363,101</b>	<b>362,874</b>	<b>437,423</b>	<b>436,419</b>	<b>99,210</b>

(a) Less than \$500.

## LOCAL GOVERNMENT FINANCE

The financial powers of local government authorities in Western Australia are derived principally from the *Local Government Act, 1960-1972*, the main provisions of which are outlined in Chapter III—*Constitution and Government*. Among other statutes affecting local government finance are the Traffic Act, the Health Act, the Water Boards Act, the Vermin Act and the Fire Brigades Act.

## General Revenue

SUMMARY OF LOCAL GOVERNMENT REVENUE (a)  
(\$'000)

Source of revenue	1966-67	1967-68	1968-69	1969-70	1970-71
<b>Taxation—</b>					
<b>Rates—</b>					
Municipal .....	14,982	16,819	19,500	22,530	25,630
Water Board .....	226	240	253	291	320
Vermin Board .....	57	74	77	71	46
<b>Licences and fees—</b>					
Dog .....	33	41	37	41	44
Building .....	167	197	280	346	317
Other (b) .....	77	97	109	134	161
<b>Total (b) .....</b>	<b>15,542</b>	<b>17,467</b>	<b>20,255</b>	<b>23,414</b>	<b>26,517</b>
<b>Public works and services—</b>					
<b>Income from property and plant—</b>					
Parks, gardens and other recreational facilities .....	1,068	1,135	1,440	1,784	1,883
Halls and other buildings .....	695	802	829	1,005	1,607
Vehicles and plant .....	1,004	1,153	1,215	1,252	1,547
Land sales .....	998	1,565	2,356	2,319	3,299
Other property .....	786	1,214	1,111	2,016	1,192
Contributions for road construction, etc. (c) .....	3,509	3,545	3,811	*4,640	5,430
Sanitation charges (including garbage services) (d) .....	1,344	1,519	1,370	1,629	1,978
<b>Other works and services—</b>					
Municipalities .....	1,190	1,155	2,792	1,550	2,190
Water Boards .....	50	89	87	85	178
Vermin Boards .....	17	13	19	17	18
<b>Total .....</b>	<b>10,661</b>	<b>12,190</b>	<b>15,029</b>	<b>16,296</b>	<b>19,324</b>
<b>Government grants and reimbursements—</b>					
<b>Roads (e)—</b>					
Central Road Trust Fund .....	3,292	4,813	4,912	(f)	(f)
Main Roads Trust Account .....	3,696	3,998	4,554	*15,748	16,908
Metropolitan Traffic Trust Account .....	861	865	825	(g) 13	(f)
Recreational facilities (h) .....	260	289	309	333	797
Electricity supply .....	23	21	11	13	12
Water Boards .....	1	1	1	1	1
<b>Vermin destruction bonuses—</b>					
Municipalities .....	6	8	5	7	5
Vermin Boards .....	11	9	7	13	12
Other .....	111	100	188	230	378
<b>Total .....</b>	<b>8,262</b>	<b>10,104</b>	<b>10,810</b>	<b>*16,358</b>	<b>18,112</b>
<b>Vehicle licences and fees (i) .....</b>	<b>4,432</b>	<b>4,602</b>	<b>5,038</b>	<b>*930</b>	<b>761</b>
<b>Electricity undertakings .....</b>	<b>2,621</b>	<b>3,068</b>	<b>3,044</b>	<b>3,660</b>	<b>4,089</b>
<b>Other revenue—</b>					
<b>Fines and penalties—</b>					
Traffic .....	264	340	480	750	804
Other .....	24	20	22	33	34
Interest .....	333	366	544	737	1,043
Other .....	889	826	1,016	*878	1,105
<b>Total .....</b>	<b>1,509</b>	<b>1,552</b>	<b>2,061</b>	<b>*2,397</b>	<b>2,986</b>
<b>GRAND TOTAL .....</b>	<b>43,027</b>	<b>48,984</b>	<b>56,239</b>	<b>*63,056</b>	<b>71,789</b>

(a) Loan receipts are excluded; for particulars see page 287. (b) Excludes revenue from vehicle licences (see 'Vehicle licences and fees' below) and sanitary and garbage fees (see 'Sanitation charges (including garbage services)' below). (c) Includes reimbursements from various government instrumentalities for road construction and repair. Excludes grants and reimbursements from the Main Roads Department, which are included in 'Government grants and reimbursements—Roads' shown below. (d) Excludes revenue received where the charge is incorporated in the general (municipal) rate. (e) Includes grants and reimbursements from the Main Roads Department; see also footnote (c). (f) From 1 July 1969 paid from Main Roads Trust Account as required by the *Main Roads Act Amendment Act, 1969*. (g) Arrears; see footnote (f). (h) Includes grants from the Western Australian Tourist Development Authority. (i) From 1 July 1969, revenue from motor vehicle licences (less an amount retained for costs of administration) and certain fees has been paid to the Main Roads Trust Account, as required by the *Traffic Act Amendment Act (No. 2), 1969*. \* Revised.

**TAXATION.** As may be seen from the previous table, revenue from taxation other than motor vehicle registration fees accounts for more than one-third of the total receipts of local

authorities and is derived almost entirely from rates. During the five-year period ended 30 June 1971, the total revenue from municipal rates was \$99.5 million, equivalent to 35.1 per cent of revenue from all sources.

**PUBLIC WORKS AND SERVICES.** Revenue from 'Public works and services' amounted to \$73.5 million, or 26.0 per cent of all revenue during the five years to 30 June 1971. Income from property and plant, which includes rents and hire charges for buildings, plant and recreational facilities as well as sales of land, buildings, vehicles and plant, was \$42.6 million. Next in importance were receipts amounting to \$20.9 million from construction of roads, including driveways to premises, and \$7.84 million from sanitation charges, including garbage services.

**GOVERNMENT GRANTS AND REIMBURSEMENTS.** Grants for road works and recoups of road construction costs constitute the main item in this category, and amounted to \$60.5 million in the five years to 30 June 1971, equivalent to 21.4 per cent of total revenue. Local government moneys for road works are provided from State Government funds. Reference to the operations of these funds will be found in the section *Finance for Roads* in Chapter IX, Part 3. Revenue in the form of reimbursements consists of recoups of expenditure made to the local government authorities by the Main Roads Department for expenditure incurred on its behalf in road construction and maintenance.

**MOTOR VEHICLE REGISTRATION FEES.** In Western Australia, there is no single authority responsible for the licensing of motor vehicles. The Traffic Branch of the Police Department licenses vehicles in the Metropolitan Traffic Area and other areas as prescribed (see the section *Vehicle Registration, Licences and Traffic Control* in Chapter IX, Part 3). In other parts of the State each local government authority licenses vehicles in its own district, but the *Traffic Act Amendment Act (No. 2), 1969* enables such powers to be transferred, subject to the approval of the Minister, to the Commissioner of Police if a local government authority, by resolution of its Council, so requires. The Act, which came into operation on 1 July 1969, also provides that fees received by a local government authority for the issue, renewal and transfer of motor vehicle licences shall be paid to the credit of the Main Roads Trust Account. The Act enables the authority to retain part of this revenue as an allowance to meet the cost of administration of motor vehicle licensing. The amount of the allowance is \$4 in respect of each vehicle on the register up to and including 1,000 vehicles, and \$3 for each additional vehicle. Grants are made from the Main Roads Trust Account to local government authorities under a scheme to which reference is made in the section *Finance for Roads* in Chapter IX, Part 3.

### General Expenditure

**GENERAL ADMINISTRATION.** Expenditure on administration during the five-year period ended 30 June 1971 amounted to \$20.0 million, equivalent to 7.1 per cent of the total expenditure of local government authorities.

**DEBT SERVICES.** Expenditure on debt services includes debt redemption charges, interest payable under hire purchase agreements and interest charges on loans and overdrafts. The total cost of these services (excluding those relating to electricity undertakings) was \$41.9 million in the five years to 30 June 1971.

**PUBLIC WORKS AND SERVICES.** Expenditure under the heading 'Public works and services' during the five-year period ended 30 June 1971 amounted to \$197 million, or 69.9 per cent of the total. 'Roads, paths and bridges', which constitutes the principal item, accounted for \$94.1 million. It includes construction and maintenance costs as well as moneys spent on other road work such as the cleaning and watering of thoroughfares, the provision of street nameplates and seats, street tree planting and street lighting. Other costs attributed to 'Public works and services' are those connected with health, sanitation and garbage services, capital and maintenance expenditure on property and on vehicles and other plant. Some of the items included under the heading 'Public works and services' are financed only partly from revenue, the remaining expenditure being from loan funds (see table on page 287).

GRANTS AND DONATIONS. Many of the local authorities make annual contributions as required by the Fire Brigades Act towards the maintenance of fire brigades, while grants are also made in some cases to hospitals and ambulances, to infant health clinics where they are not under the direct control of the local authority concerned, to other local organisations and to the Western Australian State Symphony Orchestra.

SUMMARY OF LOCAL GOVERNMENT EXPENDITURE (a)  
(\$'000)

Nature of expenditure	1966-67	1967-68	1968-69	1969-70	1970-71
General administration ....	3,403	3,847	4,401	(b) 3,779	(b) 4,520
Debt services (c)—					
Interest—					
On loans—					
Municipalities ....	2,446	2,761	3,123	3,572	4,165
Water Boards ....	35	35	42	43	43
On overdraft ....	29	37	37	45	57
Redemption—					
Municipalities ....	3,882	4,389	4,991	5,556	6,241
Water Boards ....	52	57	66	69	80
Total (c) ....	6,443	7,279	8,259	9,285	10,585
Public works and services—					
Roads, paths and bridges—					
Construction and maintenance ....	13,208	14,054	15,952	20,818	23,003
Other road work ....	501	524	738	932	1,033
Street lighting ....	547	595	658	735	811
Property and plant—					
Parks, gardens and other recreational facilities ....	3,580	4,049	4,583	5,287	6,064
Halls and other buildings ....	1,878	2,448	2,224	2,681	3,929
Vehicles and plant ....	2,674	3,381	3,116	3,126	3,257
Other property ....	1,849	1,227	1,899	3,094	2,729
Other public works and services—					
Sanitary and garbage services ....	1,648	1,865	2,039	2,569	3,133
Other health services ....	644	773	924	1,059	1,148
Sundry works and services—					
Municipalities (d) ....	3,167	4,192	4,722	4,769	5,816
Water Boards ....	182	221	231	264	365
Vermin Boards ....	104	87	89	97	68
Total ....	29,982	33,417	37,175	45,430	51,354
Grants and donations—					
Western Australian Fire Brigades Board (e) ....	364	390	468	561	647
Hospitals and ambulances ....	26	36	48	43	31
Other ....	195	224	278	360	328
Total ....	585	651	794	964	1,006
Electricity undertakings (including debt services) ....	2,623	2,981	3,119	3,440	4,067
Other expenditure ....	525	417	636	*808	600
GRAND TOTAL ....	43,562	48,591	54,384	*63,706	72,132

(a) Loan expenditure is excluded; for particulars see page 287. (b) Figures not comparable with those for 1968-69 and earlier years due to a change in accounting procedures allowing an increased proportion of certain administrative expenditure to be charged to expenditure on roads. (c) Excludes debt services of electricity undertakings. (d) Includes contributions to Regional Traffic Councils. (e) Contributions required under the Fire Brigades Act. \* Revised.

### Loan Transactions

Under the provisions of the local government legislation, local government authorities are constituted as corporate bodies and are authorised to raise loans for works and undertakings and for the liquidation of existing loan debts. The conditions imposed by the *Local Government Act, 1960-1972* in relation to loan raisings, the levying of loan rates, the expenditure of loan moneys and the repayment of loans are summarised on pages 120-1 under the heading *Financial Provisions*.

Loans are raised mainly from banks, insurance companies and superannuation funds. The State Government exercises a measure of supervision over the loan transactions of local government authorities and, where a loan is repayable in full at maturity, maintains the necessary sinking fund at the Treasury.

The following table gives a dissection of the loan receipts and expenditure of local government authorities in each financial year during the period from 1966-67 to 1970-71.

### LOCAL GOVERNMENT LOAN RECEIPTS AND EXPENDITURE (\$'000)

Particulars	1966-67	1967-68	1968-69	1969-70	1970-71
<b>RECEIPTS</b>					
Municipalities—					
Ordinary services .....	7,871	10,193	12,163	12,914	14,438
Health services .....	61	77	419	410	756
Electricity undertakings .....	816	982	1,072	694	707
Water Boards .....	83	60	174	72	114
Total .....	8,831	11,313	13,828	14,089	16,014
<b>EXPENDITURE</b>					
Municipalities—					
Public works and services—					
Roads, paths and bridges .....	2,097	2,222	2,818	3,049	2,975
Parks, gardens and other recreational facilities .....	1,977	1,626	2,672	2,813	3,020
Halls and other buildings .....	2,425	3,036	3,309	3,263	4,971
Vehicles and plant .....	1,119	1,469	1,631	1,801	1,265
Electricity undertakings .....	667	1,087	976	921	925
Other works and services .....	266	268	487	1,118	1,276
Redemptions .....	....	40	16	58	....
Other loan charges, transfers, etc. ....	27	41	93	147	117
Water Boards .....	98	99	148	70	42
Total .....	8,676	9,889	12,150	13,240	14,592

The following table shows the aggregate local government loan debt outstanding at 30 June of each year during the period from 1967 to 1971.

### LOCAL GOVERNMENT LOAN DEBT (\$'000)

Nature of debt	At 30 June—				
	1967	1968	1969	1970	1971
Loan debt outstanding .....	53,386	59,275	67,407	75,582	83,574
Sinking fund balances .....	149	109	8	11	12
Net loan debt .....	53,237	59,166	67,399	75,571	83,562
Net loan debt on account of—					
Ordinary services .....	46,965	52,962	60,124	67,622	76,394
Health services .....	1,453	1,407	1,615	1,918	2,495
Electricity undertakings .....	4,140	4,106	4,903	5,271	3,880
Water Boards .....	677	691	757	760	793
Total, Net loan debt .....	53,237	59,166	67,399	75,571	83,562

### PENSION AND SUPERANNUATION SCHEMES

The Western Australian Government and many local government authorities and public corporations (see page 265) have established pension and superannuation schemes for eligible employees and their dependants, to which both employers and employees contribute. These schemes are operated either through separately constituted funds or through life insurance offices.

The *Superannuation and Family Benefits Act, 1938-1970* applies to employees of State Government Departments and some other public authorities. The Act establishes The Superannuation Fund and a Provident Account under the management of a Superannuation Board. Contributions made by the State are paid from the Consolidated Revenue Fund.

The *Superannuation, Sick, Death, Insurance, Guarantee and Endowment (Local Government Bodies' Employees) Funds Act, 1947-1950* enables local government authorities to establish funds to provide benefits for their employees. Contributions made by an authority are paid from its ordinary revenue.

## GOVERNMENT PENSION AND SUPERANNUATION SCHEMES (a)

Particulars	1966-67	1967-68	1968-69	1969-70	1970-71
OPERATED THROUGH SEPARATELY CONSTITUTED FUNDS					
Income—	\$'000	\$'000	\$'000	\$'000	\$'000
Contributions—					
Employees .....	2,887	3,218	3,603	4,089	5,252
Employers .....	3,277	3,723	4,340	5,121	6,108
Interest, dividends and rents .....	1,494	2,040	2,240	2,541	3,003
Other ....	175	206	57	236	174
Total .....	7,833	9,187	10,240	11,987	14,537
Expenditure—					
Pensions .....	3,573	4,218	4,840	5,750	6,482
Lump sum payments (b) .....	737	846	949	1,273	1,334
Other (c) .....	50	57	96	64	64
Total .....	4,360	5,121	5,885	7,086	7,879
Assets at end of year—					
Cash—					
Deposits with Treasury .....	....	305	314	2	501
Other deposits and cash .....	418	382	706	200	233
Commonwealth Government securities .....	101	103	106	89	12
Local and semi-governmental securities .....	28,719	31,376	33,389	36,954	40,675
Mortgages—					
Housing .....	137	301	760	1,383	1,924
Other .....	121	264	306	336	435
Loans to building societies .....	234	324	440	776	873
Company shares .....	256	291	454	453	547
Company debentures and notes .....	401	491	673	791	993
Other assets .....	3,671	4,180	5,377	6,591	7,957
Total .....	34,059	38,016	42,525	47,574	54,150
less sundry creditors, etc. ....	399	176	216	364	283
Accumulated funds .....	33,660	37,841	42,309	47,210	53,867
Contributors at end of year .....	number 17,835	number 18,804	number 19,330	number 19,910	number 21,766
Pensioners at end of year—					
Ex-employees .....	3,357	3,421	3,542	3,655	3,853
Widows .....	2,184	2,259	2,327	2,427	2,482
Children .....	208	200	220	209	225
OPERATED THROUGH LIFE INSURANCE OFFICES					
Income—	\$'000	\$'000	\$'000	\$'000	\$'000
Contributions—					
Employees .....	442	510	599	679	943
Employers .....	612	710	850	963	1,395
Surrenders .....	102	67	129	147	161
Death claims and matured policies .....	109	184	151	223	330
Other ....	8	10	9	12	23
Total .....	1,273	1,480	1,738	2,023	2,853
Expenditure—					
Premiums paid to insurance companies .....	1,029	1,191	1,423	1,712	2,261
Benefits to contributors—					
On retirement or death .....	96	189	149	215	327
On resignation or dismissal .....	86	54	106	133	133
Other ....	29	35	27	31	96
Total .....	1,239	1,469	1,705	2,090	2,816
Contributors at end of year .....	number 2,921	number 3,041	number 3,294	number 3,477	number 3,788

(a) Schemes established by the State Government, local government authorities, public corporations (see page 265), the University of Western Australia and, from 1967-68, The Western Australian Institute of Technology. (b) On retirement, death, resignation or dismissal. Includes refunds of contributions. (c) Includes gratuities: \$4,444 in 1966-67; \$187 in 1968-69; and \$2,124 in 1969-70.

**Parliamentary Superannuation Fund.** The *Parliamentary Superannuation Act, 1970-1971* establishes a Parliamentary Superannuation Fund to provide superannuation, pensions and other benefits for former Members of the Parliament of Western Australia and their dependants. The Fund is financed from contributions paid by members and moneys appropriated from the Consolidated Revenue Fund.

## PARLIAMENTARY SUPERANNUATION FUND

Particulars	1966-67	1967-68	1968-69	1969-70	1970-71
Income—	\$'000	\$'000	\$'000	\$'000	\$'000
Contributions—					
Members .....	50	53	51	59	68
Government .....	50	50	56	95	137
Interest .....	31	24	31	34	37
Other ....	....	....	....	1	....
Total .....	131	126	138	189	242
Expenditure—					
Pensions .....	55	65	93	109	180
Lump sum payments (a) .....	....	12	6	6	75
Total .....	55	77	100	116	256
Assets at end of year—					
Cash deposits with Treasury .....	3	7	11	8	3
Commonwealth Government securities .....	45	45	45	45	45
Local and semi-governmental securities .....	451	501	541	591	591
Other ....	12	7	8	53	21
Total .....	512	561	606	698	660
less sundry creditors, etc. ....	....	....	6	24	(b)
Accumulated funds .....	512	561	600	674	660
Contributors at end of year .....	number 79	number 81	number 81	number 81	number 81
Pensioners at end of year—					
Ex-members .....	17	29	29	26	37
Widows .....	26	25	26	23	27

(a) On retirement, death, resignation or dismissal. Includes refunds of contributions.

(b) Less than \$500.

**Coal Mine Workers' Pensions Fund.** The *Coal Mine Workers (Pensions) Act, 1943-1972* establishes a Coal Mine Workers' Pensions Fund to provide pensions and other benefits for persons formerly engaged in coal mining and for their dependants. The Fund is financed from contributions paid by employees and employers and moneys appropriated from the Consolidated Revenue Fund.

## COAL MINE WORKERS' PENSIONS FUND

Particulars	1966-67	1967-68	1968-69	1969-70	1970-71
Income—	\$'000	\$'000	\$'000	\$'000	\$'000
Contributions—					
Employees .....	56	54	51	51	50
Employers .....	191	183	186	191	190
Government .....	60	80	80	90	91
Interest, dividends and rents .....	110	119	129	140	156
Total .....	418	436	446	472	487
Expenditure—					
Pensions .....	274	264	282	279	313
Lump sum payments—					
On retirement or death .....	1	4	....	....	....
On resignation or dismissal .....	5	4	6	9	8
Other ....	7	6	6	8	13
Total .....	287	277	294	296	334
Assets at end of year—					
Cash deposits with Treasury .....	38	2	1	9	(a)
Commonwealth Government securities .....	118	118	118	118	118
Local and semi-governmental securities .....	1,984	2,179	2,331	2,499	2,657
Other ....	28	30	29	30	33
Total .....	2,169	2,328	2,478	2,656	2,808
less sundry creditors, etc. ....	4	5	3	5	4
Accumulated funds .....	2,165	2,323	2,475	2,651	2,804
Contributors at end of year .....	number 697	number 646	number 628	number 640	number 622
Pensioners at end of year—					
Ex-employees .....	266	275	278	276	274
Widows and children .....	189	182	208	205	210

(a) Less than \$500.

## Chapter VI—continued

### Part 2—Private Finance

#### CURRENCY

The power to legislate with respect to currency, coinage and legal tender and the issue of paper money is vested by the Constitution in the Commonwealth Parliament. This power was originally exercised by the Commonwealth Government under the Coinage Act of 1909 and the Australian Notes Act of 1910. These Acts, and later amendments, were superseded by the *Reserve Bank Act* 1965 and the *Currency Act* 1965, when a decimal currency system was adopted in Australia with effect from 14 February 1966.

Prior to 14 February 1966 the Australian currency was based on the system then in use in the United Kingdom, and therefore had as its unit the pound (£) divided into twenty shillings (s.) each of twelve pence (d.). The *Currency Act* 1965, which replaced the *Coinage Act* 1909-1947, provides for the adoption of a monetary unit known as the 'dollar', equivalent in value to ten shillings in the currency previously in use. The dollar is divided into 100 minor units, or 'cents'. Coins are in the denominations of 50 cents, 20 cents, 10 cents, 5 cents, 2 cents and 1 cent. The *Reserve Bank Act* 1965 authorises the issue of notes in the denominations of one dollar, 2, 5, 10, 20 and 50 dollars, or in any other denomination that the Treasurer determines. Notes currently issued are in the denominations of 1, 2, 5, 10 and 20 dollars.

Australian notes are legal tender in Australia to any amount, coins of the denominations of 5, 10, 20 and 50 cents for amounts not exceeding five dollars, and two-cent and one-cent coins for amounts up to and including 20 cents.

#### Rates of Exchange

The following table shows the average telegraphic transfer selling rates of exchange for Sydney (New South Wales) on a selection of overseas countries. The figures appearing in the table, which are averages of daily quotations, are based generally on rates quoted by the Commonwealth Trading Bank of Australia.

#### OVERSEAS EXCHANGE RATES—AVERAGE TELEGRAPHIC TRANSFER SELLING RATES SYDNEY ON OVERSEAS COUNTRIES: JUNE 1972

Country	Basis of quotation	Rate of exchange	Country	Basis of quotation	Rate of exchange
Austria ....	Schillings to \$A1 ....	27·12	Italy ....	Lire to \$A1 ....	686·00
Belgium (a)—			Japan ....	Yen to \$A1 ....	358·15
Financial rate ....	Francs to \$A1 ....	51·88	Netherlands ....	Guilders to \$A1 ....	3·786
Convertible rate ....	Francs to \$A1 ....	51·96	New Zealand ....	\$A to \$NZ1 ....	1·002
Canada ....	Dollars to \$A1 ....	1·1617	Norway ....	Kroner to \$A1 ....	7·73
Ceylon ....	Rupees to \$A1 ....	7·078	Noumea ....	Francs to \$A1 ....	104·26
China, People's Republic of (b)	New Yuan to \$A1 ....	2·69	Philippine Islands ....	Pesos to \$A1 ....	7·937
Denmark ....	Kroner to \$A1 ....	8·21	Singapore ....	Dollars to \$A1 ....	3·332
Fiji ....	\$A to \$F1 ....	1·0502	South Africa, Republic of	Rands to \$A1 ....	0·8852
France (a)—			Spain ....	Pesetas to \$A1 ....	76·35
Financial rate ....	Francs to \$A1 ....	5·734	Sweden ....	Kronor to \$A1 ....	5·605
Commercial rate ....	Francs to \$A1 ....	5·930	Switzerland ....	Francs to \$A1 ....	4·517
Germany, Federal Republic of	Deutsche Marks to \$A1 ....	3·753	Thailand ....	Bahts to \$A1 ....	24·69
Greece ....	Drachmae to \$A1 ....	35·45	Union of Soviet Socialist Republics (b) ....	Roubles to \$A1 ....	0·989
Hong Kong ....	Dollars to \$A1 ....	6·606	United Kingdom ....	\$A to £1 sterling ....	2·1889
India ....	Rupees to \$A1 ....	8·503	United States of America	Dollars to \$A1 ....	1·1886

(a) From 20 September 1971 two rates quoted. For trade transactions accompanied by documentation, a 'financial' rate applies. For other transactions, a 'convertible' rate applies in the case of Belgium and a 'commercial' rate in the case of France.

(b) Rate of exchange used in converting import values to Australian currency for the purpose of calculating customs duty.

## BANKING

The banking system in Western Australia comprises the Commonwealth banking institutions, The Rural and Industries Bank of Western Australia and the private trading banks.

**Commonwealth Banking Institutions**

Prior to the operation of the Reserve Bank Act and the Commonwealth Banks Act, passed by the Commonwealth Parliament in 1959, the Commonwealth banking institutions were the Commonwealth Bank, the Commonwealth Trading Bank and the Commonwealth Savings Bank. The Commonwealth Bank, in addition to performing the functions of a central bank, controlled the Australian note issue through a Note Issue Department and also provided special banking facilities through the Rural Credits Department, the Mortgage Bank Department and the Industrial Finance Department. The policy of the Banks was determined by a Commonwealth Bank Board.

The *Reserve Bank Act* 1959 repealed the Commonwealth Bank Acts, the first of which was passed in 1911, and established the Reserve Bank of Australia under the control of a Reserve Bank Board. The Reserve Bank was constituted as the central bank and took over the Note Issue Department and the Rural Credits Department of the former Commonwealth Bank. The function of the Rural Credits Department is to make available to statutory authorities or co-operative associations of primary producers advances to assist the marketing or processing of primary products.

The *Commonwealth Banks Act* 1959 constituted the Commonwealth Banking Corporation, which came into being on 14 January 1960 as the authority responsible for the operations of the Trading Bank, the Savings Bank and a new Development Bank. The Development Bank was formed basically from the Mortgage Bank Department and the Industrial Finance Department of the Commonwealth Bank, to provide finance and advice to persons to assist them in primary production or in the establishment or development of industrial undertakings, particularly small enterprises.

**The Rural and Industries Bank of Western Australia**

The Rural and Industries Bank of Western Australia was established by the State Government under the Rural and Industries Bank Act of 1944 to replace the former Agricultural Bank of Western Australia. The Bank consists of a Rural Department and a Government Agency Department, and management is vested in five Commissioners. The Rural Department provides general banking services and, since 1956, has also conducted savings bank business through a Savings Bank Division.

**Trading Banks**

At 30 June 1972 the trading banks conducting business in Western Australia comprised the Commonwealth Trading Bank of Australia, The Rural and Industries Bank of Western Australia (Rural Department), the Australia and New Zealand Banking Group Limited, The Bank of Adelaide, the Bank of New South Wales, the Banque Nationale de Paris, The Commercial Bank of Australia Limited, The Commercial Banking Company of Sydney Limited and The National Bank of Australasia Limited.

The operations of trading banks are governed by the *Banking Act* 1959-1967 (Commonwealth) which places them under a degree of control by the central bank, the Reserve Bank of Australia.

The following table shows the averages of total amounts on deposit with the trading banks and of their outstanding advances during each of the years 1967-68 to 1971-72. The figures relate to Western Australian business only and represent the annual average of amounts as at the close of business each Wednesday. The information is prepared from returns furnished under the requirements of the *Banking Act* 1959-1967 by all trading banks except The Rural and Industries Bank of Western Australia, which supplies information by special arrangement.

**TRADING BANKS—AVERAGES OF DEPOSITORS' BALANCES AND BANK ADVANCES  
(\$'000)**

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
<b>Depositors' balances—</b>					
<b>Commonwealth and State Governments—</b>					
Fixed .....	5,527	3,356	3,627	4,163	24,358
Current—					
Bearing interest .....	3,920	1,008	10	2	92
Not bearing interest .....	1,764	1,728	1,817	1,726	1,676
<b>Other than Commonwealth and State Governments—</b>					
Fixed .....	141,632	162,943	236,274	231,835	219,918
Current—					
Bearing interest .....	16,849	23,042	24,887	23,242	22,247
Not bearing interest .....	229,146	270,481	291,402	283,764	284,256
<b>Total</b> .....	<b>398,837</b>	<b>462,559</b>	<b>558,017</b>	<b>544,732</b>	<b>552,546</b>
<b>Loans, advances and bills discounted (a)</b> .....	<b>252,627</b>	<b>280,147</b>	<b>323,824</b>	<b>351,110</b>	<b>357,410</b>
<b>Ratio of loans, advances, etc. to total balances (per cent)</b>	<b>63·3</b>	<b>60·6</b>	<b>58·0</b>	<b>64·5</b>	<b>64·7</b>

(a) Excludes loans to authorised dealers in the short-term money market.

In the following table, which relates to Western Australian business only, the average amount on deposit with each trading bank and the average of its outstanding advances during the month of June 1972 are shown, together with the number of branches and agencies of each bank at 30 June 1972.

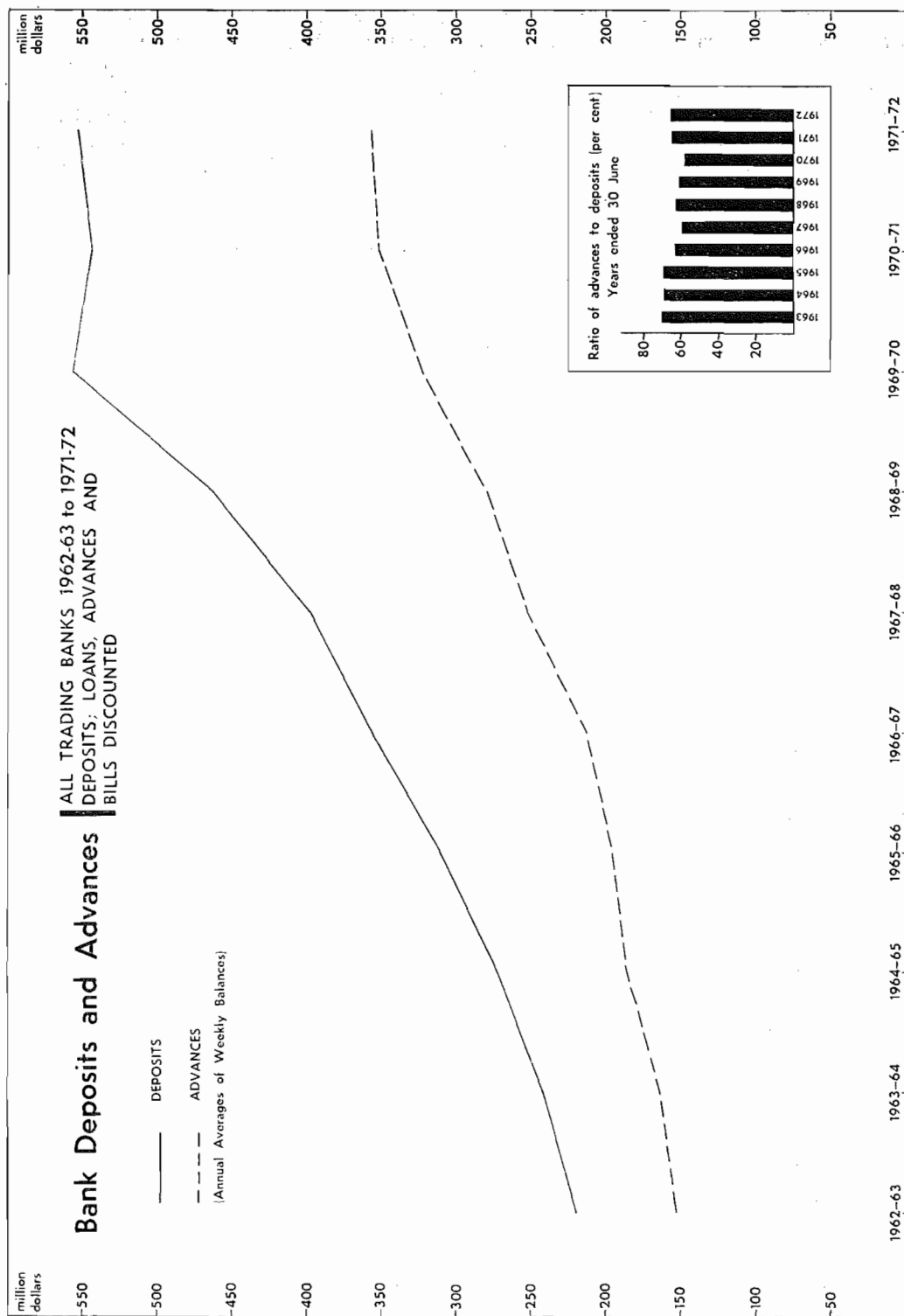
**TRADING BANKS—BRANCHES, AGENCIES, DEPOSITS AND ADVANCES: JUNE 1972**

Bank	Number of branches (a)	Number of agencies (a)	Depositors' balances (b)			Loans, advances, and bills discounted (b) (c)
			Not bearing interest	Bearing interest	Total	
Commonwealth Trading Bank of Australia .....	73	29	\$'000 48,338	\$'000 46,309	\$'000 94,646	\$'000 56,020
The Rural and Industries Bank of Western Australia (Rural Department) .....	63	22	33,637	46,126	79,762	75,511
<b>Other trading banks—</b>						
Australia and New Zealand Banking Group Limited .....	75	16	47,984	24,309	72,291	57,194
The Bank of Adelaide .....	2	3	2,695	8,792	11,487	3,267
Bank of New South Wales .....	111	32	79,642	78,630	158,272	95,919
Banque Nationale de Paris .....	1	....	979	1,806	2,784	763
The Commercial Bank of Australia Limited .....	35	13	18,088	17,731	35,818	23,956
The Commercial Banking Company of Sydney Limited .....	8	....	3,480	2,658	6,139	3,635
The National Bank of Australasia Limited .....	78	28	43,023	49,690	92,712	60,929
<b>Total, Other trading banks</b> .....	<b>310</b>	<b>92</b>	<b>195,890</b>	<b>183,616</b>	<b>379,502</b>	<b>245,662</b>
<b>TOTAL, ALL TRADING BANKS</b> .....	<b>446</b>	<b>143</b>	<b>277,863</b>	<b>276,047</b>	<b>553,910</b>	<b>377,193</b>

(a) At 30 June. (b) Averages based on amounts at close of business each Wednesday.

(c) Excludes loans to authorised dealers in the short-term money market.

In July 1972 the outstanding advances of the trading banks, excluding The Rural and Industries Bank of Western Australia and the Banque Nationale de Paris, amounted in total to \$303·6 million. Business advances represented \$233·2 million, personal advances \$64·4 million, advances to non-profit organisations \$3·8 million, and to public authorities other than the Commonwealth and State Governments \$2·0 million. Business advances were mainly for rural industry (\$78·7 million), for retail and wholesale trade (\$58·8 million) and for manufacturing (\$18·8 million). Of the personal advances, loans for the building or purchasing of homes accounted for \$21·3 million.



The following table contains particulars of the average weekly debits to customers' accounts in each year from 1966-67 to 1971-72 and in each quarter of those years. The figures represent the total of all cheques drawn by customers of all trading banks and, in addition, the Rural Credits Department of the Reserve Bank of Australia and the Commonwealth Development Bank of Australia. Debits to Commonwealth and State Government accounts at city branches are excluded as they are subject to abnormal influences. The figures are derived by averaging the debits made during weeks ended on Wednesdays during the several periods shown.

TRADING BANKS—AVERAGE WEEKLY DEBITS TO CUSTOMERS' ACCOUNTS (a)

Particulars	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72
WEEKLY AVERAGE (\$ million)						
Average for quarter ended—						
September ....	123.4	146.5	182.6	227.8	267.6	304.1
December ....	138.8	168.8	210.2	254.8	310.7	322.3
March ....	144.7	177.8	221.6	246.9	297.9	328.4
June ....	147.5	183.2	221.8	255.7	307.3	318.9
Average for year ....	138.6	169.1	209.0	246.4	295.3	318.4
PER HEAD OF MEAN POPULATION (b) (dollars)						
Average for quarter ended—						
September ....	145.0	165.9	198.4	237.4	268.3	293.8
December ....	161.5	189.2	225.7	262.5	308.0	308.7
March ....	166.7	197.2	235.1	251.6	292.2	312.1
June ....	168.4	201.2	233.3	258.6	299.0	302.5
Average for year ....	160.5	188.6	223.3	252.8	291.4	304.2

(a) Excludes debits to Commonwealth and State Government accounts at city branches; see letterpress immediately preceding table.  
(b) Figures revised in accordance with the final results of the 1971 Census.

**Bank Charges.** In October 1962 the trading banks discontinued the interstate exchange rates previously charged and instituted a system of charges on current accounts. The charges, comprising three separate elements, are calculated quarterly and debited as one composite item. In addition to a basic maintenance fee of 75c per quarter there is a ledger activity fee increasing with the number of transactions each quarter, and a collection fee on cheques deposited in excess of twenty per quarter. Rebates are allowable on ledger activity fees where credit balances are maintained at the level of \$1,000 or more throughout the quarterly period.

### Savings Banks

At 31 December 1972, savings banks operating in Western Australia comprised the Commonwealth Savings Bank of Australia, The Rural and Industries Bank of Western Australia (Savings Bank Division), the Australia and New Zealand Savings Bank Limited, The Bank of Adelaide Savings Bank Limited, the Bank of New South Wales Savings Bank Limited, The Commercial Savings Bank of Australia Limited, the C.B.C. Savings Bank Limited and The National Bank Savings Bank Limited.

Individual depositors may not operate on their savings bank accounts by cheque, but cheque accounts are generally available to non-profit organisations such as friendly, co-operative and charitable societies. Interest is paid on deposits with savings banks and no charge is made for the keeping of accounts. A school savings bank service is provided and its operations, except for the number of accounts open at the end of each year, are included in the figures shown in the following table.

## SAVINGS BANK TRANSACTIONS

Particulars	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72
Deposits (a) .....	\$'000 467,401	557,289	663,653	719,324	781,226	893,458
Withdrawals (a) .....	\$'000 439,255	525,587	637,254	714,719	763,788	864,129
Excess of deposits over withdrawals .....	\$'000 28,146	31,703	26,399	4,605	17,438	29,329
Interest added to accounts .....	\$'000 9,790	11,093	12,983	14,288	15,295	17,518
Accounts open at end of year (b) .....	No. 905,349	970,120	1,036,180	1,096,466	1,153,420	1,205,448
Depositors' balances at end of year—						
Total .....	\$'000 330,807	373,602	412,984	431,877	464,611	511,457
Average per operative account .....	\$ 365.5	385.1	398.6	393.9	402.8	424.3
Average per head of population (c) .....	\$ 376.3	408.3	432.5	435.6	450.9	485.6

(a) Includes inter-branch transfers but excludes transfers from and to other States.  
(i.e. accounts of less than \$2 which have not been operated on for more than two years).  
with the final results of the 1971 Census.

(b) Excluding inoperative accounts  
(c) Figures revised in accordance

The following table, which relates to Western Australian business only, shows the number of branches and agencies of each of the savings banks at 30 June 1972. The amount of depositors' balances held by each bank at the end of June 1972 is also shown. This information, together with similar particulars for each of the other Australian States, is published monthly in the *Commonwealth of Australia Gazette*, and is prepared from returns furnished under the requirements of the *Banking Act 1959-1967* by all savings banks except The Rural and Industries Bank of Western Australia (Savings Bank Division), which supplies information by special arrangement.

SAVINGS BANKS—BRANCHES, AGENCIES AND DEPOSITS  
JUNE 1972

Bank	Number of branches (a)	Number of agencies (a)	Depositors' balances (b)
Commonwealth Savings Bank of Australia .....	93	683	\$'000 234,186
The Rural and Industries Bank of Western Australia (Savings Bank Division) .....	63	360	97,390
Other savings banks—			
Australia and New Zealand Savings Bank Limited	75	448	45,634
The Bank of Adelaide Savings Bank Limited	2	10	1,175
Bank of New South Wales Savings Bank Limited	111	363	84,641
The Commercial Savings Bank of Australia Limited	35	42	12,287
C.B.C. Savings Bank Limited	8	9	1,577
The National Bank Savings Bank Limited	78	71	34,567
Total, Other savings banks .....	309	943	179,881
TOTAL, ALL SAVINGS BANKS .....	465	1,986	511,457

(a) At 30 June. (b) Particulars for the Commonwealth Savings Bank and The Rural and Industries Bank of Western Australia (Savings Bank Division) relate to 30 June, and those for other savings banks to the last Wednesday in June.

In December 1969 approval was given by the Reserve Bank of Australia to a proposal for the establishment of a new type of savings bank account on which interest could be paid at rates almost 1 per cent above the general deposit rate paid at that time by most savings banks. The holder of such an account is required to give three months' notice before a withdrawal may be made. The account must also have, at all times, a minimum balance of \$500 and transactions are in minimum amounts of \$100. The maximum rate of interest payable on these 'investment' accounts at 30 June 1972 was 5.00 per cent per annum.

## Bank Interest Rates

The following table shows bank interest rates current at 30 June 1972, the dates from which they became operative, and the rates which were applicable prior to those dates.

## BANK INTEREST RATES AT 30 JUNE 1972

Particulars	Rate per annum	Date from which operative	Previous rate per annum
	per cent		per cent
LENDING RATES			
Trading banks—			
Overdraft—			
Less than \$50,000 (a) .....	7.75	1972—4 February	8.25
\$50,000 and over .....	(b)	4 February	8.25
Unsecured personal loans (a) (c) .....	6.25	4 February	6.50
Commonwealth Development Bank of Australia—			
Rural loans (d) .....	6.25	1969—1 August	6.00
Industrial loans (d) .....	7.25	1970—6 April	6.75
Reserve Bank of Australia, Rural Credits Department—			
Government-guaranteed loans .....	5.00	1969—8 August	4.75
Other loans .....	5.25	8 August	5.00
Savings banks—			
Housing loans to individuals .....	(e) 6.25–7.00	1970—1 April	(f) 6.25
Other loans—			
Less than \$50,000 .....	7.75	1972—10 March	8.25
\$50,000 and over .....	(b)	10 March	(a) 8.25
DEPOSIT RATES			
Trading banks—			
Fixed deposits of less than \$50,000 (a)—			
3 months and less than 12 months .....	4.30	1972—4 February	5.00
12 months and less than 2 years ....	4.50	4 February	5.00–5.30
2 years and less than 4 years .....	5.00	4 February	5.30–6.00
4 years .....	5.50	4 February	6.50
Fixed deposits of \$50,000 and over (a) (b)—			
30 days to 4 years .....	6.50	4 February	5.50–6.50
Certificates of deposit of \$50,000 and over (a) (b)—			
3 months to 24 months .....	6.50	4 February	5.50
Savings banks (g)—			
Ordinary accounts (h)—			
\$4,000 and under .....	3.75–5.00	1970—1 April	3.75–4.00
Over \$4,000 .....	4.25–5.00	1 April	3.75–4.00
Investment accounts (i) .....	5.00	1972—10 March	5.25

(a) Maximum rate. (b) Actual rates are a matter for negotiation between banks and their customers. (c) Flat rate. (d) Basic rate. (e) Range of rates predominantly charged. (f) Predominant rate. (g) The maximum interest-bearing amount in any one account is \$20,000 (\$10,000 from 1 March 1967 to 30 March 1970); this limit does not apply to cheque accounts of friendly and other societies. (h) The lower rate shown has predominated in the case of most banks; The Rural and Industries Bank of Western Australia has paid the higher rate. (i) Subject to notice and minimum balance requirements (see previous page).

## INSURANCE

## General Insurance

General insurance is available to the public in Western Australia from a number of companies and, in some fields, from the State Government Insurance Office. There is also a Motor Vehicle Insurance Trust whose activities are confined to motor vehicle third party insurance.

During 1971-72, there were 157 companies operating in Western Australia. The majority of these were 'tariff' offices, being members of the Fire and Accident Underwriters' Association and issuing the standard policies of the Association at uniform premium rates. The remainder were 'non-tariff' companies effecting insurances at competitive rates and reinsuring direct with Lloyd's or other underwriters.

The State Government Insurance Office covers fire, marine and general insurance risks for State Government instrumentalities and semi-government and local government authorities. It also conducts some classes of insurance business for the general public, the principal transactions being workers' compensation and comprehensive motor vehicle insurance. By authority of amendments to the State Government Insurance Office Act in 1954 and 1958 the Office engages in personal accident insurance in respect of school children and students under a policy which indemnifies the parent or guardian against the cost of medical and surgical treatment and funeral and other expenses.

The following table gives details of revenue and expenditure relating to fire, marine and general insurance during each of the years from 1967-68 to 1971-72. It contains

only selected items of statistics and is therefore not suitable for the construction of a 'Profit and Loss' statement or 'Revenue Account'. The amounts shown as 'Premiums' represent the full amount receivable in respect of policies issued or renewed during the year, less returns, rebates and bonuses paid or credited to policy holders during the year. They are not adjusted to provide for premiums unearned at the end of the year and consequently the amounts differ from 'earned premium income' appropriate to the year. The amounts shown as 'Claims' include provision for outstanding claims and represent claims or losses incurred during the year. Salvage and other amounts recoverable have been deducted. The transactions of The Motor Vehicle Insurance Trust are not included, but are shown in the table on page 299. The figures shown under the heading of 'Contributions to fire brigades' represent payments made to the Western Australian Fire Brigades Board for the operation and maintenance of fire brigades, as required by the Fire Brigades Act.

**FIRE, MARINE AND GENERAL INSURANCE (a)**  
(\$'000)

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
<b>REVENUE</b>					
Premiums—					
Motor vehicles ....	13,530	15,697	18,073	20,290	22,456
Fire .....	7,096	7,676	8,815	10,392	11,130
Workers' compensation .....	9,046	9,609	11,138	12,197	13,187
Householders' comprehensive .....	3,107	3,935	4,995	5,716	6,557
Personal accident .....	2,167	2,555	3,105	3,616	4,130
Hailstone .....	1,489	1,479	1,065	1,065	1,129
Marine .....	1,738	2,069	2,603	2,964	3,519
Other classes .....	3,552	4,546	5,847	7,633	8,953
Total premiums .....	41,724	47,566	55,641	63,873	71,061
Other (interest, dividends, rents, etc.—net) .....	1,484	1,711	1,703	1,726	2,102
Total revenue ....	43,208	49,277	57,343	65,599	73,163
<b>EXPENDITURE</b>					
Claims—					
Motor vehicles....	10,413	11,676	13,154	14,946	16,324
Fire .....	1,752	2,614	3,096	4,210	3,988
Workers' compensation .....	7,801	8,192	8,528	8,616	10,047
Householders' comprehensive .....	832	1,961	1,516	1,663	1,900
Personal accident .....	827	1,019	1,094	1,336	1,684
Hailstone .....	272	267	273	374	816
Marine .....	802	1,117	1,177	1,342	1,790
Other classes .....	1,518	1,923	2,397	3,306	3,476
Total claims .....	24,218	28,769	31,237	35,793	40,025
Other—					
Management expenses....	8,352	9,410	11,259	12,711	14,636
Commission and agents' charges .....	3,587	4,029	4,860	5,687	6,321
Taxation....	603	792	1,117	1,683	1,901
Contributions to fire brigades .....	1,138	1,299	1,459	1,826	2,257
Total expenditure ....	37,898	44,299	49,931	57,700	65,140

(a) Excludes transactions of The Motor Vehicle Insurance Trust (see table on page 299). Operations of the State Government Insurance Office are included.

## Life Insurance

Life insurance business throughout Australia is regulated by the *Life Insurance Act* 1945-1965 (Commonwealth), which requires companies to be registered by the Insurance Commissioner appointed under the Act and to establish statutory funds in relation to their life insurance transactions. The purpose of the Act, which supersedes State legislation, is to place life insurance business on a uniform basis throughout the Commonwealth and to afford protection to policy holders. Under a previous Commonwealth Act, the *Insurance Act* 1932-1966, the companies were required to deposit money or approved securities with the Treasurer in order to guarantee the claims of insured persons, and this provision is continued by the present Act.

At 30 June 1972, there were thirty-eight life insurance companies or societies operating in Western Australia. In terms of total sums insured, life insurance policies relate predominantly to ordinary endowment or whole-of-life insurance and superannuation, although an appreciable volume of industrial business is also undertaken.

Details of policies, sums insured and annual premiums for each class of business are given in the following table for the years 1967-68 to 1971-72.

### LIFE INSURANCE

Year	New policies issued			Policies discontinued or reduced			Policies, etc. existing at end of year		
	Policies	Sum insured	Annual premiums	Policies	Sum insured	Annual premiums	Policies	Sum insured	Annual premiums
	Number	\$'000	\$'000	Number	\$'000	\$'000	Number	\$'000	\$'000
<b>ORDINARY BUSINESS</b>									
1967-68	37,621	203,244	4,546	17,359	49,675	1,174	349,401	1,071,388	27,189
1968-69	42,467	264,783	5,583	17,959	56,676	1,308	373,909	1,279,496	31,465
1969-70	45,621	316,911	6,470	21,120	79,092	1,823	398,410	1,517,315	36,112
1970-71	50,911	371,518	7,265	23,699	107,492	2,364	425,622	1,781,341	41,013
1971-72	56,542	450,762	8,615	26,614	134,119	2,868	455,550	2,097,984	46,760

### INDUSTRIAL BUSINESS

1967-68	11,168	11,815	479	10,553	5,766	248	168,116	66,702	2,750
1968-69	11,266	12,650	521	10,742	6,765	288	168,640	72,587	2,984
1969-70	10,435	13,004	538	11,160	7,222	304	167,915	78,368	3,218
1970-71	9,447	16,462	561	10,785	8,033	333	166,577	86,798	3,446
1971-72	9,101	16,122	560	12,488	10,108	384	163,190	92,812	3,621

### SUPERANNUATION BUSINESS

1967-68	5,978	46,868	1,462	3,941	16,778	568	39,488	194,080	6,659
1968-69	6,212	61,713	2,069	4,813	19,904	577	40,887	235,889	8,151
1969-70	6,513	71,024	2,210	4,311	33,558	1,281	43,089	273,355	9,079
1970-71	7,237	108,457	3,488	4,880	43,304	1,427	43,446	338,508	11,140
1971-72	6,816	100,288	3,113	4,691	51,451	1,751	47,571	387,345	12,502

### ORDINARY, INDUSTRIAL AND SUPERANNUATION BUSINESS

1967-68	54,767	261,927	6,487	31,853	72,220	1,990	557,005	1,332,170	36,598
1968-69	59,945	339,147	8,173	33,514	83,345	2,172	583,436	1,587,972	42,600
1969-70	62,569	400,938	9,218	36,591	119,872	3,409	609,414	1,869,038	48,409
1970-71	67,595	496,437	11,314	39,364	158,828	4,123	637,645	2,206,647	55,599
1971-72	72,459	567,171	12,288	43,793	195,678	5,004	666,311	2,578,140	62,884

### Motor Vehicle Third Party Insurance

Third party insurance in connection with motor vehicle accidents became compulsory on 1 July 1944 under the provisions of the Motor Vehicle (Third Party Insurance) Act of 1943. The Motor Vehicle Insurance Trust was established by an amendment to the Act in 1948 and comprises the general manager of the State Government Insurance Office, three members nominated by the Fire and Accident Underwriters' Association of Western Australia, and one nominee of those participating approved insuring organisations which are not members of the Association.

The Trust administers a Motor Vehicle Insurance Fund in which approved insurers participate. Premiums received from motor vehicle third party insurance and revenue from other sources constitute annual 'pools' and, after payment of claims and other expenses appropriate to each pool, the resulting profit or loss is shared by the participating insurers, which include the State Government Insurance Office. These shares cannot be finally determined until the last claim is paid and it is usually several years before a

pool has satisfied all the claims attributable to it. For this reason, the figures given in the following table are subject to progressive revision as the business of each pool approaches finality.

**THE MOTOR VEHICLE INSURANCE TRUST**  
(S'000)

Revenue and expenditure	Pool (a) for the year—				
	1967-68	1968-69	1969-70	1970-71	1971-72
<b>Revenue—</b>					
Premiums .....	6,173	9,297	12,570	14,322	(b) 19,719
Interest received .....	980	1,406	1,698	1,442	571
<b>Total revenue</b> .....	<b>7,154</b>	<b>10,703</b>	<b>14,269</b>	<b>15,764</b>	<b>(b) 20,290</b>
<b>Expenditure—</b>					
Claims (c) .....	6,394	9,807	11,809	12,059	(d) 12,802
Commission .....	48	51	64	68	70
Management expenses .....	198	241	289	361	433
Taxation .....	18	17	20	16	10
<b>Total expenditure</b> .....	<b>6,657</b>	<b>10,116</b>	<b>12,182</b>	<b>12,503</b>	<b>(d) 13,314</b>

(a) See accompanying letterpress *Motor Vehicle Third Party Insurance*. Figures are revised to 30 June 1972. (b) Inclusive of \$4.50 million unearned premiums. (c) Includes estimate for claims outstanding. (d) Includes estimate of \$2.20 million for claims not notified.

### Health Insurance Organisations

Voluntary health insurance is offered by a number of organisations which provide one or more types of benefit covering such items as hospital and medical fees, funeral expenses and sick pay to or on behalf of contributing members and their dependants. They include societies registered under the *Friendly Societies Act, 1894-1964* and other organisations registered under the *National Health Act 1953-1971* (Commonwealth).

Benefits are available in a wide range to meet the cost, either wholly or in part, of such services as treatment by a general or specialist medical practitioner (including surgical operations and obstetrical attention), X-ray, cardiographic and pathological examinations, physiotherapy, dental treatment, hospital care, home nursing and ambulance transport. In many cases, the Commonwealth Government pays a benefit additional to that received from the organisation. Reference to these additional benefits is made in Chapter V—*Social Conditions*. Members of friendly societies may contribute also for the supply of medicines and some societies maintain endowment assurance funds and supplementary death benefit funds.

The following tables give details, for the years 1967-68 to 1971-72, of the membership and the financial activities of friendly societies registered under the Friendly Societies Act. 'Benefit' members are those who contribute to the Sick and Funeral Fund of a society and 'honorary' members are principally those who pay only for medical and hospital benefits.

### FRIENDLY SOCIETIES—NUMBER, MEMBERS AND SICKNESS BENEFITS

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
Registered societies .....	11	11	11	11	11
Branches .....	249	248	246	246	243
Members at end of year—					
Benefit members of sick and funeral fund .....	15,715	15,465	15,175	14,841	14,087
Other members .....	34,909	37,658	38,648	39,628	50,304
Sickness benefits—					
Number of members paid .....	2,322	2,179	2,158	1,945	1,877
Number of weeks of sick pay .....	54,623	51,857	50,580	48,633	48,189

### FRIENDLY SOCIETIES—REVENUE AND EXPENDITURE (\$'000)

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
<b>Revenue—</b>					
Fees, contributions and levies .....	2,251	2,587	2,756	2,947	3,734
Interest, dividends and rent .....	166	153	178	192	193
Other .....	98	141	73	260	91
<b>Total revenue .....</b>	<b>2,515</b>	<b>2,881</b>	<b>3,008</b>	<b>3,399</b>	<b>4,018</b>
<b>Expenditure—</b>					
Sick pay.....	41	38	39	38	38
Medical attendance and medicine .....	1,925	2,337	2,521	2,660	3,294
Death benefits .....	45	51	44	44	52
Administration .....	178	194	202	227	260
Other .....	104	144	134	114	245
<b>Total expenditure .....</b>	<b>2,293</b>	<b>2,764</b>	<b>2,940</b>	<b>3,082</b>	<b>3,889</b>
<b>Balance of funds at end of year .....</b>	<b>3,910</b>	<b>4,027</b>	<b>4,095</b>	<b>4,411</b>	<b>4,541</b>

### REGISTERED BUILDING SOCIETIES

Building societies in Western Australia are registered under the provisions of the *Building Societies Act, 1920-1970* primarily for the purpose of raising funds to assist members by granting loans, secured on mortgage, to build or acquire homes. They also provide a means of investment for shareholder members, trustee funds and other depositors. The funds of the societies may be in the form of payment for fully-paid shares, subscriptions for contributing shares, money placed on deposit, or negotiated loans. Another important source of revenue became available to the societies in 1956-57 when, under the *Housing Agreement Act 1956* (Commonwealth), it was provided that moneys should be allocated to approved institutions from Commonwealth funds advanced to the States in terms of the Commonwealth and States Housing Agreement. A requirement of the Act was that these institutions should receive not less than 30 per cent of total advances made to the State during each of the financial years 1958-59 to 1960-61, and this provision has been continued by later Acts. The present legislation, the *States Grants (Housing) Act 1971* (Commonwealth) provides for its extension to the year ending 30 June 1976. Other provisions of the Act replace arrangements under the Commonwealth and States Housing Agreement, which has not been renewed.

### REGISTERED BUILDING SOCIETIES

Particulars	1966-67	1967-68	1968-69	1969-70	1970-71
<b>Societies on register at 30 June—</b>					
Permanent .....	13	14	15	15	15
Terminating .....	179	220	266	303	339
Shareholders .....	38,273	47,530	56,556	92,152	122,136
Borrowers .....	13,708	16,893	20,885	27,513	30,716
	\$'000	\$'000	\$'000	\$'000	\$'000
Loans paid over during year .....	14,031	24,436	48,650	91,481	84,150
Working expenses (a) .....	1,824	2,438	3,355	4,479	5,876
<b>Liabilities—</b>					
Investing members' funds .....	22,231	27,427	36,607	112,407	166,644
Borrowing members' funds .....	1,674	2,024	2,122	2,187	2,315
Deposits .....	10,944	17,613	42,122	49,700	70,720
Loans due to—Government .....	19,231	22,027	25,565	28,058	32,619
Other .....	12,779	17,547	26,127	27,403	28,835
Other liabilities (b) .....	723	936	1,141	2,361	1,840
<b>Total liabilities .....</b>	<b>67,582</b>	<b>87,575</b>	<b>133,686</b>	<b>222,116</b>	<b>302,972</b>
<b>Assets—</b>					
Advances on mortgages (b) .....	62,689	79,278	115,933	191,669	255,704
Other assets .....	4,893	8,297	17,752	30,446	47,268
<b>Total assets .....</b>	<b>67,582</b>	<b>87,575</b>	<b>133,686</b>	<b>222,116</b>	<b>302,972</b>

(a) Includes administration expenses and interest on borrowed funds but not interest on investing members' funds, borrowing members' funds, or deposits. (b) Excludes loans in process and advances approved but not yet paid.

The Building Societies Act provides for the constitution of a Building Societies Advisory Committee of five members, comprising the Registrar of Building Societies as chairman, the President of the State branch of the Commonwealth Institute of Valuers, two persons who are qualified and experienced in building society management and practice, and an officer of the State Public Service nominated by the Minister.

The functions of the Committee, as set out in the Act, are to make recommendations and submit proposals to the Minister with respect to regulations and model rules to be made under the Act; any action to be taken for promoting, encouraging and assisting in the formation of societies; improving the methods of operation of societies; charges which societies may make on and require to be paid by their members, other than share subscriptions and repayment of advances; the financing of societies in their operations and the protecting of the finances of societies; promoting the building of dwelling-houses by co-operative effort; determining and specifying the minimum standards of construction of dwelling-houses and other buildings to be accepted before advances can be made; and such other matters as the Minister refers to the Committee from time to time, or as may be prescribed.

### INSTALMENT CREDIT FOR RETAIL SALES

The statistics in the following tables cover all types of instalment credit schemes which relate primarily to the financing of retail sales of goods in which repayment is made by regular predetermined instalments. Types of schemes covered include hire purchase, time payment, budget account and personal loans which relate primarily to the financing of retail sales of goods. In these statistics the term 'retail sales' relates not only to retail sales by retail establishments coming within the scope of the Censuses of Retail Establishments conducted periodically by the Commonwealth Statistician, Canberra (see Chapter IX, Part 2), but includes also other sales of goods to final purchasers (*e.g.* plant and machinery).

In the next two tables, two major classifications of instalment credit statistics are adopted: type of credit and type of business.

The term 'retail businesses' in the latter category relates to retailers who provide their own finance, and also to subsidiary finance businesses set up by retailers (or by groups engaged mainly in retail trading), primarily for the purpose of financing their retail sales. All other businesses engaged in instalment credit financing of retail sales, irrespective of whether their main activity is finance, constitute 'non-retail finance businesses'.

More detailed information regarding classifications used in the following tables may be found in monthly and quarterly statements relating to instalment credit for retail sales issued by the Commonwealth Statistician, Canberra.

Details of the balances outstanding at 30 June 1968 to 1972, according to type of credit and type of business, are given in the following table.

INSTALMENT CREDIT FOR RETAIL SALES—BALANCES OUTSTANDING (a)  
(\$ million)

At 30 June—	Type of credit		Type of business		
	Hire purchase	Other instalment credit	Retail (b)	Non-retail finance	Total
1968	119.8	32.7	26.8	125.8	152.6
1969	132.9	38.0	27.6	143.3	170.9
1970	146.7	40.7	24.7	162.6	*187.3
1971	168.5	35.9	23.2	181.2	204.4
1972	178.6	33.8	21.4	191.0	212.4

(a) Includes hiring charges, interest and insurance, primarily for financing their retail sales. \* Revised.

(b) Includes subsidiary finance businesses set up by retailers pri-

The following table shows for broad commodity groups the amount financed according to type of credit and type of business during the period 1967-68 to 1971-72.

INSTALMENT CREDIT FOR RETAIL SALES—AMOUNT FINANCED (a)  
(\$ million)

Year	Type of credit		Type of business		
	Hire purchase	Other instalment credit	Retail (b)	Non-retail finance	Total
<b>MOTOR VEHICLES, TRACTORS, ETC.</b>					
1967-68	55.6	19.1	5.2	69.4	74.7
1968-69	60.2	21.7	6.2	75.7	81.9
1969-70	73.2	*20.0	5.1	*88.1	* 93.2
1970-71	89.0	*12.5	4.2	*97.3	*101.5
1971-72	92.1	13.7	3.8	102.0	105.8
<b>PLANT AND MACHINERY</b>					
1967-68	13.8	4.1	1.9	16.0	17.9
1968-69	12.6	4.7	2.0	15.3	17.3
1969-70	11.4	5.2	1.0	15.5	16.6
1970-71	13.0	0.8	0.6	13.2	13.8
1971-72	10.8	0.8	0.5	11.1	11.6
<b>HOUSEHOLD AND PERSONAL GOODS</b>					
1967-68	13.3	11.8	17.9	7.1	25.1
1968-69	14.0	11.4	18.7	6.7	25.4
1969-70	15.1	11.0	19.0	7.1	26.1
1970-71	16.0	*11.2	19.4	7.8	*27.2
1971-72	15.8	12.4	20.3	7.9	28.2
<b>TOTAL</b>					
1967-68	82.7	34.9	25.1	92.5	117.6
1968-69	86.8	37.8	26.9	97.7	124.7
1969-70	99.7	*36.2	*25.2	*110.7	*135.9
1970-71	118.0	*24.5	24.2	*118.3	*142.5
1971-72	118.7	26.8	24.6	121.0	145.6

(a) Excludes hiring charges, interest and insurance.  
\* Revised.

(b) Includes subsidiary finance businesses set up by retailers primarily for financing their retail sales.

## FINANCE COMPANIES

Information relating to the lending operations of finance companies in Western Australia is given in the following tables. A comprehensive account of the scope of the statistics, definitions, and more complete details of the transactions of finance companies are given in the annual bulletin *Finance Companies Transactions* and the monthly statement *Finance Companies*, published by the Commonwealth Statistician, Canberra. Details of breaks in continuity of the series, indicated by a line drawn across a column between two consecutive figures, are given in the annual bulletin for the year 1971-72.

For the purpose of these statistics, finance companies are defined as companies which are engaged mainly in providing to the general public (businesses as well as persons in their private capacity) credit facilities of the following types: hire purchase and other instalment credit for retail sales; wholesale finance; other consumer and commercial loans; and factoring. The finance companies covered in these statistics, in so far as they provide credit for retail sales, are also included in the statistics shown in the preceding section *Instalment Credit for Retail Sales*.

**Amount Financed.** The following table shows the amount financed, according to type of agreement, i.e. instalment credit for retail sales, wholesale finance, personal loans, other consumer and commercial loans, in Western Australia for the years 1967-68 to 1971-72.

**FINANCE COMPANIES—AMOUNT FINANCED : TYPE OF AGREEMENT**  
(\$ million)

Year	Instalment credit for retail sales	Wholesale finance	Personal loans	Other consumer and commercial loans	Total
1967-68 ....	78.2	73.8	3.7	59.1	214.7
1968-69 ....	83.0	81.9	5.9	105.0	275.8
1969-70 ....	98.1	90.5	5.8	106.3	300.8
1970-71 ....	*106.8	102.3	*3.8	*73.9	*286.7
1971-72 ....	108.3	121.1	6.6	74.0	310.0

\* Revised.

**Collections and other Liquidations of Balances.** The following table shows the collections and other liquidations of balances, according to type of agreement, *i.e.* instalment credit for retail sales, wholesale finance, and other consumer and commercial loans, made by finance companies in Western Australia for the years 1967-68 to 1971-72.

**FINANCE COMPANIES—COLLECTIONS AND OTHER LIQUIDATIONS OF BALANCES**  
(\$ million)

Year	Instalment credit for retail sales	Wholesale finance	Personal loans	Other consumer and commercial loans		Total, all contracts
				Contracts including charges	Contracts excluding charges	
1967-68 ....	79.3	71.0		33.4	14.9	198.6
1968-69 ....	90.3	80.9	(a)	53.1	33.6	258.0
1969-70 ....	107.2	87.8		60.6	45.0	300.6
1970-71 ....	*122.3	100.5	*5.8	45.5	52.7	*326.8
1971-72 ....	136.3	115.1	5.7	44.3	62.5	363.9

(a) Not available separately; included in *Other consumer and commercial loans*.

\* Revised.

**Balances Outstanding.** The following table shows the balances outstanding in Western Australia, according to type of agreement, and the total balances outstanding at the end of each year from 1967-68 to 1971-72.

**FINANCE COMPANIES—BALANCES OUTSTANDING : TYPE OF AGREEMENT**  
(\$ million)

Year	Instalment credit for retail sales	Wholesale finance	Personal loans	Other consumer and commercial loans		Total, all contracts
				Contracts including charges	Contracts excluding charges	
1967-68 ....	106.6	10.5		64.9	26.7	208.6
1968-69 ....	*122.0	12.2	(a)	* 96.0	46.2	276.3
1969-70 ....	*143.0	16.1		*100.6	74.6	334.4
1970-71 ....	*162.7	19.6	*7.2	91.1	76.4	*356.9
1971-72 ....	171.2	27.2	9.8	79.6	77.1	365.0

(a) Not available separately; included in *Other consumer and commercial loans*.

\* Revised.

**Business Plant and Equipment on Lease.** The following table shows the initial capital cost of business plant and equipment on lease and the balances outstanding in Western Australia at the end of each year from 1967-68 to 1971-72.

**FINANCE COMPANIES—BUSINESS PLANT AND  
EQUIPMENT ON LEASE**  
(\$ million)

Year	Initial capital cost of goods newly leased during year	Balances outstanding at end of year
1967-68 ....	9.7	12.0
1968-69 ....	11.2	18.4
1969-70 ....	16.9	27.4
1970-71 ....	*21.5	*37.5
1971-72 ....	21.3	48.9

\* Revised.

**Instalment Credit for Retail Sales.** The following table shows additional details, for Western Australia, of the total instalment credit for retail sales transactions of finance companies. Amount financed is dissected by type of commodity, and collections and other liquidations of balances are divided into cash collections and other liquidations.

**FINANCE COMPANIES—INSTALMENT CREDIT FOR RETAIL SALES**  
(\$ million)

Year	Amount financed during year					Collections and other liquidations during year			Balances outstanding at end of year
	New motor vehicles, tractors, etc.	Used motor vehicles, tractors, etc.	Plant and machinery	Household and personal goods	Total	Cash collections	Other liquidations	Total	
1967-68 ....	31.9	29.9	10.8	5.6	78.2	76.3	2.9	79.3	106.6
1968-69 ....	33.8	34.2	10.4	4.6	83.0	86.1	4.2	90.3	122.1
1969-70 ....	36.1	42.9	11.9	7.3	98.1	102.0	5.2	107.2	*143.0
1970-71 ....	39.5	*50.6	8.5	*8.2	*106.8	*115.4	*6.9	*122.3	*162.7
1971-72 ....	39.3	55.5	6.5	7.0	108.3	127.1	9.1	136.3	171.2

\* Revised.

## BANKRUPTCY

Under the provisions of the *Bankruptcy Act* 1966-1970 (Commonwealth), which is administered by the Attorney-General, the State of Western Australia is a proclaimed Bankruptcy District and the Supreme Court of Western Australia has federal jurisdiction in bankruptcy matters. There is a Registrar in Bankruptcy whose duties include the holding of public sittings for the examination of bankrupts, the examination of witnesses, the issuing of bankruptcy notices and creditors' petitions, and such other duties as are specified in the Act or delegated to him by the Court. Another bankruptcy officer is the Official Receiver, who acts under the general authority and direction of the Court and whose duties relate to the conduct of the debtor and to the realisation and administration of his estate.

An order for the sequestration of an estate may result from a petition by either the debtor or the creditors. In cases where it appears certain that the assets of a deceased estate will be insufficient to meet the debts, the executor or a creditor may petition to have the estate administered in bankruptcy.

Compositions, deeds of assignment and deeds of arrangement are provided for in the Act. A debtor may call a meeting of his creditors and either compound with them to pay a certain sum in the \$ as full settlement of his debts or enter into a deed of arrangement allowing him a specified time in which to pay. On the other hand, his creditors may require him to execute a deed of assignment, by which control of his affairs passes to a trustee registered under the Act, or to file a petition in bankruptcy.

The following table relates to bankruptcy proceedings during each of the years from 1967-68 to 1971-72.

## BANKRUPTCY PROCEEDINGS

Year	Sequestration orders (a)				Compositions and assignments without sequestration (b)		
	On petition of—		Assets (\$'000)	Liabilities (\$'000)	Number	Assets (\$'000)	Liabilities (\$'000)
	Creditors	Debtors					
1967-68	4	218	230	1,013	52	745	941
1968-69	18	206	495	1,081	60	896	1,100
1969-70	11	218	847	1,924	64	1,098	1,421
1970-71	3	289	637	2,322	98	2,483	2,702
1971-72	21	387	1,300	3,478	110	2,839	3,806

(a) Includes orders for administration of deceased persons' estates.

(b) Includes deeds of arrangement.

## PUBLIC TRUST OFFICE

The *Public Trustee Act, 1941-1972* establishes the Public Trust Office administered by the Public Trustee.

The principal functions of the Public Trustee are the administration of the estates of deceased persons, including intestate estates; the management of the affairs of certain persons rendered incapable by mental illness or other infirmity; and the receipt of moneys under the control or order of the Supreme Court of Western Australia, to be invested and used for the maintenance, education or other benefit of the persons entitled thereto. The Public Trustee receives from the Workers' Compensation Board funds to be held in trust for investment and to be paid out at the direction of the Board. He may also act in the capacity of agent in cases of need.

## PUBLIC TRUST OFFICE

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
Matters accepted for administration—					
Estates of—					
Deceased persons	1,287	1,283	1,354	1,262	1,317
Mentally incapable persons	471	477	414	339	390
Infirm persons	....	10	21	23	31
Uncared-for property	....	1	....	4	3
Court trusts	145	175	230	262	275
Workers' compensation	99	125	96	105	102
Agencies	79	25	28	23	20
Total	2,081	2,096	2,143	2,018	2,138
Matters on hand at 30 June	5,349	5,604	6,069	6,279	6,535
Value of transactions—	\$'000	\$'000	\$'000	\$'000	\$'000
Trust moneys received	7,356	8,157	9,522	9,391	9,829
Trust moneys paid	6,303	7,201	8,601	8,322	8,577
Unclaimed moneys paid to Consolidated Revenue Fund	45	49	18	34	84
Value of estates and other matters on hand at 30 June	24,185	29,539	30,282	32,276	33,781

## OFFICE OF TITLES

The Office of Titles is established under the provisions of the *Transfer of Land Act, 1893-1972*. The Act provides for the appointment of a Commissioner of Titles, a Deputy Commissioner of Titles and a Registrar of Titles. The principal functions of the Office are the registration and recording of all instruments and dealings affecting privately-owned land or land alienated from the Crown, the certification and issue of titles to land, and the maintenance of a register of legal ownership.

The number of documents accepted for registration during the year ended 30 June 1972 was 122,663, an increase of 12 per cent from the number in 1970-71.

## OFFICE OF TITLES

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
Number of registrations—					
Certificates of title—					
Crown grant	2,226	1,924	2,731	1,559	1,344
Other	16,524	20,939	19,363	19,095	21,878
Leases—					
Crown	678	508	363	254	269
Other	30	10	18	47	35
Transfers	39,240	44,928	38,015	31,700	35,618
Mortgages	31,445	38,031	33,970	29,085	31,901
Discharges of mortgages	23,486	29,481	27,075	24,126	26,750
Caveats lodged	4,693	5,442	5,778	6,910	8,684
Amount of consideration—	\$'000	\$'000	\$'000	\$'000	\$'000
Transfers	336,504	494,271	482,253	385,759	436,966
Mortgages	244,349	370,314	398,059	410,195	445,488
Fees collected	449	870	866	785	860
Expenditure	529	617	796	891	1,033
Assurance Fund—					
Amount of credit at 30 June	217	231	246	260	278

## COMPANIES REGISTRATION OFFICE

The Registrar of Companies is responsible, subject to the Minister, for the administration of the *Companies Act, 1961-1971*, the *Business Names Act, 1962*, the *Associations Incorporation Act, 1895-1969* and the *Bills of Sale Act, 1899-1971*.

The following table gives a summary of operations under these Acts during the five-year period ended 31 December 1971.

## COMPANIES REGISTRATION OFFICE

Particulars	1967	1968	1969	1970	1971
Number of registrations effected—					
Local companies (a)	911	1,631	2,176	2,524	1,966
Foreign companies (b)	228	315	422	623	529
Business names	12,724	13,528	15,119	16,624	16,340
Associations	72	79	111	113	141
Bills of sale and liens—					
Registrations	57,120	44,674	48,287	71,467	87,165
Satisfactions entered	647	561	638	562	745
Nominal capital of local companies registered during year	\$'000	\$'000	\$'000	\$'000	\$'000
Amounts of bills of sale and liens—	77,045	87,480	195,145	389,706	115,873
Registrations	165,172	138,603	141,496	208,059	303,542
Satisfactions entered	4,324	2,994	5,822	4,708	5,790
Fees collected (c)	436	508	704	1,030	1,226

(a) Companies incorporated in Western Australia. (b) A company incorporated outside Western Australia is required to register as a 'foreign' company if carrying on business in Western Australia. (c) Year ended 30 June.

## THE STOCK EXCHANGE OF PERTH LIMITED

The Stock Exchange of Perth commenced operations in 1889, and conducted business at a number of locations before moving in December 1968 to its present quarters at Exchange House. These premises were designed and constructed to provide adequate space for total post trading which was introduced in July 1967, replacing the call system in which brokers made bids from their desks as stocks were called by a member of the Exchange staff.

The Stock Exchange of Perth was registered as a limited company under the provisions of the Companies Act on 30 June 1971. At that date there were thirty-five members of the Exchange, and thirty-four at 30 June 1972.

The following table gives details of turnover for the years ended 30 June 1971 and 1972. A revised system of sales recording was introduced in 1970-71 to include both on and off-room sales, and comparable figures for earlier years are not available.

**THE STOCK EXCHANGE OF PERTH LIMITED**  
**TURNOVER OF STOCKS AND SHARES**  
(Figures supplied by The Stock Exchange of Perth Limited)

Particulars						1970-71	1971-72
<b>NUMBER OF SHARES TRADED</b>							
						'000	'000
Ordinary—							
Industrial	....	....	....	....	....	26,232	21,935
Oil	....	....	....	....	....	27,949	17,384
Mining	....	....	....	....	....	167,127	67,828
Preference—							
Industrial	....	....	....	....	....	} 68	{ 174
Mining	....	....	....	....	....		
Total	....	....	....	....	....	221,377	107,343
<b>VALUE OF TURNOVER</b>							
						\$'000	\$'000
Shares—							
Ordinary—							
Industrial	....	....	....	....	....	29,500	27,831
Oil	....	....	....	....	....	5,081	5,768
Mining	....	....	....	....	....	112,162	22,425
Preference—							
Industrial	....	....	....	....	....	} 99	{ 185
Mining	....	....	....	....	....		
Total	....	....	....	....	....	146,843	56,230
Commonwealth and semi-government loans						2,007	1,066
Debentures, unsecured notes, etc.						1,038	1,577
Total	....	....	....	....	....	3,044	2,642
Total value of turnover						149,887	58,872

**LOTTERIES AND BETTING**

**Lotteries**

The Lotteries Commission was established under the provisions of the *Lotteries (Control) Act, 1932*. The legislation currently in force is the *Lotteries (Control) Act, 1954-1970*. The Commission, as constituted by the Act, consists of four members appointed by the Minister. The principal functions of the Commission are to conduct lotteries in Western Australia to raise money for charitable purposes, and to control lotteries conducted by other persons.

The Act requires that all prizes distributed in lotteries conducted by the Commission shall be cash prizes. It is further provided that the total expenses of conducting lotteries in any year, including commission payable on ticket sales and the remuneration of members of the Commission, shall not exceed 25 per cent of the gross amount received from the sale of tickets.

The Commission is required to pay 20 per cent of all moneys received in respect of lotteries that it conducts into a special account, which is kept at the Treasury in terms of the *Hospital Fund Act, 1930-1937*. Moneys remaining to the credit of the Commission after meeting all outgoings authorised by the Act may, with the consent of the Minister, be applied to any approved charitable purpose or in the purchase, improvement or maintenance of lands and buildings for the purposes of the Act.

The following tables show the number of lotteries conducted by the Commission during the five-year period ended 30 June 1972, the number of tickets sold, the receipts from ticket sales, and the financial transactions of the Commission.

# LOTTERIES COMMISSION—NUMBER OF CONSULTATIONS AND TICKET SALES

Year	Type of lottery							Total
	\$5	\$4	\$3	\$2	\$1	50c	25c	
NUMBER OF CONSULTATIONS								
1967-68 ....	1	....	1	....	6	16	86	110
1968-69 ....	....	2	2	....	8	26	72	110
1969-70 ....	1	....	9	2	8	72	....	92
1970-71 ....	1	....	7	7	11	77	....	97
1971-72 ....	....	....	1	7	15	84	....	107

NUMBER OF TICKETS SOLD ('000)								
1967-68	100	....	100	....	600	1,600	8,600	11,000
1968-69	....	200	150	....	800	2,600	7,200	10,949
1969-70	50	....	450	100	800	7,200	....	8,600
1970-71	50	....	50	450	1,100	7,700	....	9,350
1971-72	....	....	100	700	1,500	8,400	....	10,700

RECEIPTS FROM TICKET SALES (\$'000)								
1967-68	500	....	300	....	600	800	2,150	4,350
1968-69	....	800	450	....	800	1,300	1,800	5,150
1969-70	250	....	1,350	200	800	3,600	....	6,200
1970-71	250	....	150	900	1,100	3,850	....	6,250
1971-72	....	....	300	1,400	1,500	4,200	....	7,400

## LOTTERIES COMMISSION—FINANCIAL TRANSACTIONS (\$'000)

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
-------------	---------	---------	---------	---------	---------

GENERAL ACCOUNT					
Receipts from ticket sales	4,350	5,150	6,200	6,250	7,400
Expenses—					
Prize money	2,493	3,001	3,757	3,803	4,506
Commission on ticket sales	367	421	479	485	572
Salaries and superannuation	97	98	108	108	125
Printing, stationery and equipment	29	37	36	39	43
Other	128	155	177	221	219
Total	3,114	3,713	4,557	4,656	5,465
Surplus available for distribution	1,236	1,437	1,643	1,594	1,935

ACCUMULATED FUNDS ACCOUNT					
Balance at beginning of year	238	236	243	276	251
Surplus available for distribution	1,236	1,437	1,643	1,594	1,935
Unclaimed prizes	66	78	118	92	104
Rent and interest received	44	31	36	68	71
Other	10	9	83	37	2
Total	1,594	1,791	2,123	2,067	2,363
Grants approved	1,344	1,539	1,835	1,807	2,052
Prizes paid	8	6	6	7	7
Other	7	3	6	2	3
Total	1,359	1,548	1,847	1,816	2,062
Balance at end of year	236	243	276	251	301

AMOUNT OF GRANTS PAID					
Hospitals and medical and health services	984	1,298	1,089	1,334	1,560
Homes, orphanages and mission centres	352	293	169	208	172
Infant health services	23	16	2	7	9
Other charitable organisations	251	188	212	244	245
Total	1,611	1,795	1,472	1,793	1,986

# Betting

The *Betting Control Act, 1954-1970* and the *Totalisator Agency Board Betting Act, 1960-1970* provide for the regulation and control of betting and bookmaking on horse racing in Western Australia.

The Betting Control Act authorises the Totalisator Agency Board to issue licences enabling the holder to carry on the business of bookmaking on a race-course or at registered premises, and betting by or with a person not so licensed is unlawful.

The Totalisator Agency Board Betting Act gives the Totalisator Agency Board authority to regulate and control off-course betting on totalisators through the Board and betting with the Board. The Board consists of seven members appointed by the Governor, and comprises a chairman nominated by the Minister, three persons nominated by The Western Australian Turf Club, and three persons nominated by the Western Australian Trotting Association.

The application of the Act is confined to areas declared by proclamation to be 'totalisator agency regions'. The first agency established by the Board was opened on 18 March 1961. At 31 July 1972 there were 165 agencies in operation.

The Board derives its principal revenues from commission on bets and from a duty of 1½ per cent on the gross takings of every totalisator, as provided by the *Totalisator Duty Act, 1905-1970*. The Board may also borrow money, subject to the approval of the Treasurer. It is required that the balance of the Board's funds, after meeting all taxes, expenses and allocations, shall be paid in specified proportions to The Western Australian Turf Club and the Western Australian Trotting Association.

Details of taxes, licence fees and duties payable in connection with horse racing are shown on page 272 and the amounts collected during the five-year period ended 30 June 1971 appear in the table *State Government Taxation—Net Amounts Collected* on page 276.

The following table shows the amounts invested on totalisators on race-courses and through agencies of the Totalisator Agency Board, and amounts invested with licensed bookmakers, during the five-year period ended 30 June 1972.

TOTALISATOR INVESTMENTS AND INVESTMENTS WITH LICENSED BOOKMAKERS

Type of investment	1967-68	1968-69	1969-70	1970-71	1971-72
	\$'000	\$'000	\$'000	\$'000	\$'000
Totalisator investments—					
On course	7,342	8,708	10,920	12,301	14,471
Off course (a)	38,838	44,229	49,993	55,351	68,072
Total	46,180	52,938	60,913	67,652	82,543
Investments with licensed bookmakers—					
On course	27,048	31,836	38,625	39,656	41,693
Off course	284	353	347	122	146
Total	27,332	32,189	38,972	39,778	41,840
All investments—					
On course	34,391	40,544	49,545	51,957	56,165
Off course	39,121	44,582	50,339	55,473	68,218
Total	73,512	85,126	99,884	107,430	124,383
Per head of mean population (b)	\$ 82	\$ 91	\$ 102	\$ 106	\$ 119

(a) Investments made through agencies of the Totalisator Agency Board, final results of the 1971 Census.

(b) Figures revised in accordance with the

## CHAPTER VII

### LAND TENURE AND SETTLEMENT, WATER SUPPLY AND SEWERAGE

#### Part 1—Land Tenure and Settlement

An outline of the origin and development of the land tenure system in Western Australia from the early years of settlement is given in Chapter VII of the *Official Year Book of Western Australia*, Nos. 1 and 2 (New Series).

The growth of land settlement in relation to particular agricultural and pastoral activities is dealt with in the relevant sections of Chapter VIII and in the *Statistical Summary from 1829* appearing after Chapter X.

#### LEGISLATION AND ADMINISTRATION

By the Land Act of 1898, earlier legislation relating to the sale, occupation and management of Crown lands was consolidated and amended. Under a series of Agricultural Lands Purchase Acts which were passed between 1896 and 1904 and consolidated by the *Agricultural Lands Purchase Act, 1909*, provision was made for the repurchase by the Crown of land suitable for closer settlement. The principal criteria applied in the purchase of such land were suitability for wheat or mixed farming and proximity to transport, especially the railways.

The operation of subsequent legislation has not greatly changed the pattern of land development which was created by the *Land Act, 1898* and the *Agricultural Lands Purchase Act, 1909*. The *Land Act, 1933-1971* is now the basic statute controlling the leasing and disposal of Crown land. Closer settlement legislation relates predominantly to schemes for the benefit of returned war-service personnel. Crown land is also leased under the *Mining Act, 1904-1971*, the *Petroleum Act, 1967* and the *Forests Act, 1918-1969*, but no alienations are made under these Acts. In most freehold or leasehold titles of a residential, agricultural or pastoral nature the mineral rights, petroleum rights and, in many instances, the timber rights are reserved to the Crown.

The Department of Lands and Surveys is responsible for the leasing and alienation of Crown land, except where mining and forestry tenures are involved, and is under the control of the Minister for Lands. In certain instances, advisory or partly-executive boards have been created to assist in administration. These include the Land Board, which deals with general applications for land, and the Pastoral Appraisal Board.

Permits and leases for mining purposes are issued by the Department of Mines and those for forestry and timber milling by the Forests Department.

#### METHODS OF LAND ALIENATION

The principal methods of alienation provided for in the *Land Act, 1933-1971* are conditional purchase, public auction, private tender, selection under Part VIII which supersedes the *Agricultural Lands Purchase Act*, endowment (including free Crown grants) and reservation for public purposes. In addition to these normal methods of alienation there is provision in the Land Act for the release of land under special circumstances, where particular developmental projects are envisaged. In such cases any agreement must be ratified by the State Parliament.

The various methods of land alienation are described in greater detail in Chapter VII of the *Western Australian Year Book*, No. 8—1969 and earlier issues.

## METHODS OF LEASING

Brief reference was made on page 310 to the work of the Department of Lands and Surveys, the Department of Mines and the Forests Department in granting leases of Crown lands in Western Australia. A summary of the activities of each Department in this field is given below, further details appearing in Chapter VII of the *Western Australian Year Book*, No. 8—1969, No. 6—1967 and earlier issues.

### Department of Lands and Surveys

Approximately 98 per cent of the Crown land held under lease is covered by tenures granted by the Department of Lands and Surveys under the Land Act, and consists mainly of pastoral leases, special leases, leases of reserves and leases of residential lots. In addition, areas of perpetually-leased farming land have been made available to ex-servicemen under War Service Land Settlement Acts.

### Department of Mines

Under the provisions of the *Mining Act, 1904-1971*, various special tenures, of which gold-mining leases, mineral leases and coal-mining leases are the most important, are granted by the Governor in connection with the mining of gold, coal and other minerals. The Act contains provisions relating to the payment of fees, rents and royalties. The Governor may exempt any person or class of persons from the payment of royalties.

Oil search permits and licences are granted by the Minister for Mines, and petroleum leases by the Governor under the provisions of the *Petroleum Act, 1967* and the *Petroleum (Submerged Lands) Act, 1967-1970*, with authority to charge fees, rents and royalties.

### Forests Department

While not designated as leases, certain of the tenures issued under the *Forests Act, 1918-1969*, such as Sawmilling Permits and Mill Site Permits, are similar in effect. A number of other leases, licences and permits are issued by the Forests Department, one of which, the Forest Produce Licence, authorises the licensee to collect various types of forest products other than millable timber. Permits are also granted for apiary sites of an area not exceeding three acres.

## LAND CLASSIFICATION

Large-scale as well as detailed soil survey measures have been developed progressively in Western Australia since the early days of settlement. Soil mapping of Crown lands in Western Australia has always been carried out as a function of the Department of Lands and Surveys. In the early years of land settlement the staff surveyors, when marking blocks, submitted classifications and commented generally on the probable yield and carrying capacity of the land, as a guide to pricing.

Modern survey techniques enable much use to be made of photogrammetric methods in the mapping and presentation of the soil survey, particularly in definition of vegetation and topographical detail such as rivers, creeks, swamps, hills, valleys, features such as rock outcrops and sand drifts, and the general contours of the land. Much topographical detail is available from the State mapping activities and this information is always used in conjunction with the field work of the soil survey.

The soils are graded into eight categories, to facilitate pricing procedure, due regard being given to the agricultural potential as determined by analysis and experimentation by the Department of Agriculture. This enables release of land in such a manner that each unit is adequate if developed on economic methods. At the same time, the soil

maps assist in the overall planning for provision and extension of services such as roads, water and power supplies, townsites and all the services essential to regional development. Pastoral potential appraisements are presented with more emphasis on the grazing potential of natural vegetation in order to assess estimated carrying capacities, rather than detailed soil types.

In addition to the soil and pastoral mapping surveys which are carried out under the direction of the Surveyor General, similar methods are used by other Government Authorities and private organisations, for forestry assessment, classification and control, and for geological mapping.

It has been estimated by the Surveyor General that, of the State's total area of 975,920 square miles about 11 per cent is represented by the agricultural areas, 52 per cent by the pastoral regions and the remaining 37 per cent by practically unoccupied areas of the interior. Soil mapping investigations have enabled a broad assessment of the total area and a detailed assessment of the bulk of the agricultural areas and pastoral regions.

### OCCUPATION OF LAND

The following table shows, for a selection of years during the period from 1900 to 1971, the areas of land absolutely alienated or in process of alienation and of Crown land held under certain types of lease or licence. For the years 1900, 1910 and 1920 the basis of classification according to Department has been made to conform to current practice in the issue of leases and licences. For example, tenures relating to forests, which were originally issued by the Department of Lands and Surveys and later by the Department of Mines, have been shown for those years under the heading of Forests Department. For 1930 and later years the figures are as recorded by the Departments concerned. The types of tenure included under the several departmental headings are indicated in the footnotes to the table.

LAND ALIENATED AND LAND HELD UNDER LEASE  
(<sup>0</sup>000 acres)

At 31 December—	Area absolutely alienated	Area in process of alienation	Area of leases or licences in force on Crown land and issued (a) by—			
			Department of Lands and Surveys		Department of Mines (c)	Forests Department (d)
			Pastoral leases	Other leases (b)		
1900 ....	3,462	3,157	86,429	11	84	852
1910 ....	4,534	13,716	166,060	554	106	1,291
1920 ....	8,953	14,722	258,024	2,469	103	1,640
1930 ....	14,671	21,275	224,106	885	84	1,333
1940 ....	18,305	13,843	204,787	2,084	94	2,357
1950 ....	21,564	11,831	(e) 195,736	3,460	101	3,578
1960 ....	27,572	12,813	218,194	6,635	91	3,995
1967 ....	31,936	15,490	237,165	7,106	99	4,168
1968 ....	32,951	15,244	238,232	7,128	103	4,052
1969 ....	34,312	14,170	238,590	6,402	142	3,739
1970 ....	34,419	14,411	244,590	6,295	121	3,403
1971 ....	34,852	13,445	245,785	6,250	134	3,309

(a) See letterpress preceding table. (b) Comprises special leases, leases of reserves, leases of residential lots and perpetual leases. (c) Comprises gold-mining leases, mineral leases and miners' homestead leases. (d) Predominantly sawmilling permits. Includes permits for cutting wandoo for tannin extraction, but excludes permits and licences for cutting timber and firewood in Goldfields areas. (e) Apparent decrease in area due mainly to revision in the records of the Department of Lands and Surveys.

Land which is shown as 'absolutely alienated' consists mainly of farming areas, acquired originally as conditional purchase leases and subsequently alienated under Crown grant. While held under lease prior to alienation they account for most of the land shown as 'in process of alienation'. These two sets of figures taken together consequently give a broad indication of the increased use of land for agricultural purposes during the period under review. Similarly, variations in the area occupied as sheep and cattle stations may be gauged by reference to the area of pastoral leases issued by the Department of Lands and Surveys.

The passing of the Homesteads Act in 1893 and of a comprehensive Land Act in 1898 provided the basis for a rapid increase in the settlement of agricultural land. Under the Homesteads Act, any man over the age of 18 years who did not already own an area of 100 acres or more in this State could apply for a free homestead farm of 160 acres, on condition that he resided on his land during at least six months of each of the first five years and carried out prescribed improvements. With a lower minimum age of 16 years, a similar provision is contained in the *Land Act, 1933-1971*, and this provision, operating in conjunction with the conditional purchase lease system, has also been a factor in the increase in land settlement, particularly in the wheat-growing areas.

About 1905 the Department of Lands and Surveys, by implementing a system of survey and subdivision before selection, partially checked the indiscriminate selection of land by inexperienced farmers. A further stabilising influence on agricultural development was the introduction in 1909 of a system of grading Crown lands into classes, First, Second and Third according to suitability for farming.

The movement of population from the goldfields to the wheat belt contributed to the increase in the area of land in process of alienation from 3,156,798 acres in 1900 to 13,715,752 in 1910. The ultimate alienation of about one-third of this land by Crown grant is reflected in the greatly increased figures for 'absolutely alienated' land in 1920. Settlement of the wheat belt developed rapidly during and after the period 1910 to 1920, in spite of serious droughts which occurred in 1911 and 1914. Although the increased totals at 31 December 1930 were principally due to this development, they resulted in part from the acquisition during the previous ten years of farmland, mainly for dairying, in the south-west of the State under the Group Settlement Scheme. These holdings were individually much smaller than those in the wheat-growing districts, because of the type of farming and the heavy clearing costs, but the numbers involved made the total area taken up under the Scheme of some significance.

Pastoral leases, which comprise the greatest proportion of Crown land held under lease or licence, increased threefold between 1900 and 1920. The area actually held under pastoral lease conditions represents approximately one-third of the whole State. The aggregate area of gold-mining leases, mineral leases and miners' homestead leases, appearing in the table under the heading of Department of Mines, shows comparatively little variation since 1900. However, in recent years very large areas have been included in tenures issued under the provisions of the *Petroleum Act, 1967* and in temporary reserves under the *Mining Act, 1904-1971*.

From 1930 the demand for land for agricultural purposes declined considerably, the principal reason being the lower farm commodity prices which prevailed for several years prior to the second World War. After 1945, however, the demand for land again increased, stimulated by the sharp rise in export prices, notably of wheat and wool, and later by the War Service Land Settlement Scheme. The area conditionally alienated in any one year reached a post-war peak of 1,707,894 acres in 1953. During the next decade the area fluctuated between 705,874 acres in 1956 and 1,234,516 acres in 1962. The area then declined and by 1970 and 1971 the areas conditionally alienated were only 375,735 acres and 159,949 acres, respectively, due to restrictions imposed on the release of Crown land by conditional purchase.

The following table gives details of areas of land for which applications were approved, during each of the years 1967 to 1971, by the Department of Lands and Surveys for conditional alienation or allocation under lease or licence. The figures shown for any year do not necessarily represent land allotted for the first time, as they may include land previously held under any of the several forms of land tenure.

**CROWN LANDS—AREA OF ALLOCATIONS  
APPROVED BY DEPARTMENT OF LANDS AND SURVEYS (a)  
(Acres)**

Particulars	1967	1968	1969	1970	1971
<b>Conditional alienation—</b>					
Conditional purchase ....	1,088,014	788,976	298,773	373,790	156,059
Agricultural land purchases ....	611	....	....	....	....
Town and suburban lots ....	792	344	310	457	778
Miscellaneous (b) ....	43,769	5,785	4,797	1,488	3,112
<b>Total ....</b>	<b>1,133,186</b>	<b>795,105</b>	<b>303,880</b>	<b>375,735</b>	<b>159,949</b>
<b>Leases and licences—</b>					
Pastoral leases and licences ....	4,232,887	1,933,357	2,728,400	9,185,275	4,658,616
Special leases ....	143,857	63,903	188,588	76,122	109,263
Miscellaneous leases (c) ....	56,041	38,119	50,372	43,594	14,263
<b>Total ....</b>	<b>4,432,785</b>	<b>2,035,379</b>	<b>2,967,360</b>	<b>9,304,991</b>	<b>4,782,142</b>

(a) See letterpress immediately preceding table.

(b) Comprises free homestead farms and reserves.

(c) Comprises

perpetual leases, leases of reserves and leases of town and suburban lots.

## GOVERNMENT LAND SETTLEMENT SCHEMES

Although, generally, the method of land alienation and settlement in the agricultural areas of Western Australia has been by independent applications by individual settlers for conditional purchase leases, there has also been a series of government land settlement schemes. The more important of these are the Soldiers' Settlement Scheme following the 1914-18 war, the Group Settlement Scheme introduced in 1921, the War Service Land Settlement Scheme which was initiated in 1945 and other lesser schemes for the settlement of civilians. An outline of each of these schemes appears in Chapter VII of the *Western Australian Year Book*, No. 7—1968 and earlier issues.

## *Chapter VII—continued*

### **Part 2—Water Supply and Sewerage**

The principal water supply and sewerage systems of Western Australia are under the control of two State authorities, the Metropolitan Water Supply, Sewerage, and Drainage Board and the Public Works Department.

The Metropolitan Water Supply, Sewerage, and Drainage Board is constituted under the provisions of the *Metropolitan Water Supply, Sewerage, and Drainage Act, 1909-1972*. It came into being on 1 July 1964 and replaced the former Metropolitan Water Supply, Sewerage and Drainage Department as the authority responsible, subject to the Minister, for the general administration of the Act. The Board consists of seven members appointed by the Governor. One member is appointed Chairman on the nomination of the Governor and the remaining members comprise the General Manager of the Board; a qualified engineer; the Under-Treasurer or an officer of the Treasury nominated by him; and three representatives of ratepayers of municipal districts within the Metropolitan Water, Sewerage and Drainage Area. This area of approximately 1,600 square miles constitutes the territory under the Board's administration. It embraces Perth and the metropolitan area southward to Warnbro Beach and Serpentine, northward to Mullaloo and Herne Hill and eastward to Swan View-Sawyers Valley, Kalamunda, Bickley and Carmel, and also incorporates approximately 900 square miles of the water catchment areas of the Canning, Serpentine, North Dandalup and South Dandalup Rivers and streams of the Darling Range.

The Public Works Department controls the Goldfields and Agricultural Water Supply and the Great Southern Towns Water Supply as well as 130 local water supplies. It also provides water for irrigation purposes in the four South-West Irrigation Districts (Waroona, Harvey, Collie River and Preston Valley), the Camballin Irrigation District and the Ord Irrigation District. In addition, a small pilot scheme supplying twenty-six growers in the Carnarvon Non-Artesian Area is being operated.

Four independent town schemes are controlled by local Water Boards in country areas under the *Water Boards Act, 1904-1969* and some local authorities supply water under the provisions of the *Local Government Act, 1960-1972*. Private companies engaged in mining in the North-West of the State provide their own water supply for mining operations, power supply and domestic use. Individual water supplies serve railways, timber mill towns, isolated mines, pastoral properties, stock routes and agricultural areas, mainly from dams, tanks, wells and bores.

The principal water storages in Western Australia are shown in the next table. Supplies for the metropolitan area and environs are drawn almost entirely from Serpentine Reservoir and Serpentine Pipehead Reservoir, Canning Reservoir, Wungong Brook Diversion Weir, Churchman Brook Reservoir, Victoria Reservoir and North Dandalup Pipehead Dam. Mundaring Weir, which is the source for the Goldfields and Agricultural Water Supply, is linked to Kalgoorlie by pipeline and serves the more populous parts of the Eastern Goldfields as well as certain towns and farming areas north and south of the main pipeline. As occasion arises Mundaring Weir supplies to or draws from the Metropolitan Water Supply. Stirling Dam, with a supplementary catchment at Harvey Weir, serves part of the irrigation area of the South-West. Drakes Brook Dam, Samson Brook Dam, Logue Brook Dam, Waroona Dam and Glen Mervyn Dam are also used for this purpose. Wellington Dam, on the Collie River, has been enlarged to meet not only the needs of the southern parts of the irrigation area but also of towns included in the Great Southern Towns Water Supply.

The storage capacities of the principal dams and reservoirs at 30 June 1971 were as shown below.

**DAMS AND RESERVOIRS—STORAGE CAPACITY (a)**  
(Million gallons)

Dam or reservoir	Storage capacity	Dam or reservoir	Storage capacity
Canning Reservoir .....	20,550	Samson Brook Dam .....	2,021
Churchman Brook Reservoir .....	480	Serpentine Pipehead Reservoir .....	850
Drakes Brook Dam .....	504	Serpentine Reservoir .....	39,000
Fitzroy Dam .....	1,025	17-Mile Dam (e) .....	1,209
Glen Mervyn Dam .....	329	Stirling Dam .....	12,552
Harvey Weir .....	(b) 1,765	Victoria Reservoir .....	189
Logue Brook Dam .....	5,358	Warooka Dam .....	3,290
Mundaring Weir .....	16,966	Wellington Dam .....	40,790
North Dandalup Pipehead Dam .....	(c)	Wungong Brook Diversion Weir .....	(f)
Ord River Diversion Dam (d) .....	*21,468		

(a) At 30 June 1971. (b) Excludes flashboard storage. (c) Capacity 400,000 gallons. (d) Bandicoot Bar Dam.  
(e) On Uralla Creek, an anabranch of the Fitzroy River. (f) Diversion weir only. \* Revised.

**METROPOLITAN WATER SUPPLY**

The sources of the metropolitan water supply are Serpentine Reservoir and Serpentine Pipehead Reservoir, Canning Reservoir, Wungong Brook Diversion Weir, Churchman Brook Reservoir, Victoria Reservoir and North Dandalup Pipehead Dam. The supply from these sources is supplemented as necessary from a pipeline link with Mundaring Weir and from a number of artesian bores. The amount of bore water used, however, is now low in proportion to total metropolitan consumption, being rarely more than 10 per cent during a severe summer and usually considerably less.

**METROPOLITAN WATER SUPPLY—QUANTITIES OF WATER DRAWN (a)**  
(Million gallons)

Source	1966-67	1967-68	1968-69	1969-70	1970-71
Canning Reservoir .....	8,071	5,328	9,315	11,392	9,618
Churchman Brook Reservoir .....	635	933	839	526	1,025
Mundaring Weir .....	282	148	332	234	315
North Dandalup Pipehead Dam (b) .....					536
Serpentine Reservoir (c) .....	13,773	16,123	14,551	14,840	15,764
Victoria Reservoir .....	(d)	120	253	251	834
Wungong Brook Diversion Weir .....	1,772	1,064	1,832	1,435	2,225
Metropolitan bores .....	1,579	1,437	1,228	3,551	2,644
<b>Total</b> .....	<b>26,112</b>	<b>25,152</b>	<b>28,350</b>	<b>32,230</b>	<b>32,960</b>

(a) Including supplies to railways and shipping. (b) Commenced operating December 1970. (c) Includes water drawn from Serpentine Pipehead Reservoir. (d) Not in use during 1966-67.

Victoria Reservoir, which was completed in 1891 with a capacity of 189 million gallons, was the first of the existing water conservation projects to be completed in the Darling Range. In 1921 a 23-million gallon reservoir, which is no longer used for water supply, was constructed at Bickley Brook to replace a pipehead dam, and in 1928 one with a capacity of 480 million gallons was completed at Churchman Brook. During the same period pipehead dams were built across the upper course of the Canning River and its tributary, Wungong Brook, preliminary to the construction of Canning Reservoir, which was begun in 1933 and completed in 1940. Canning Reservoir has a storage capacity of 20,550 million gallons retained by a concrete wall 218 feet high and 1,534 feet long at the crest. Serpentine Pipehead Reservoir was completed in 1957 and Serpentine Reservoir, commenced in 1957, was completed in 1961. Serpentine Reservoir is constructed of rolled earth fill and the embankment rises 171 feet above the stream bed, the length at the crest being 1,390 feet. Its capacity, which is slightly less than that of Wellington Dam on the Collie River, is 39,000 million gallons. Supplies to the metropolitan system are augmented by the North Dandalup Pipehead Dam which is the first stage of the Dandalup Rivers Scheme and was completed in December 1970. The major storage component of the scheme, the 45,800 million gallon capacity South Dandalup Dam, is under construction and is scheduled for completion by late 1973.

Water from the storages in the Darling Range is conveyed to the metropolitan area by large trunk mains and then distributed by feeder, distribution and reticulation mains, either directly from the trunk mains or from large service reservoirs at Mount Yokine, Mount Eliza, Bold Park, Mount Hawthorn, Richmond, Melville, Buckland Hill, Hamilton Hill, Thompson Lake and Greenmount and from summit tanks and water towers situated at high points throughout the area supplied. To meet the peak demand during the summer months, supplies from these sources are supplemented from a system of artesian bores which can provide a daily maximum of 21 million gallons. On 30 June 1972, the number of consumer services was 210,465. The previous table shows the quantities of water which were drawn from the various sources during each of the five years ended 30 June 1967 to 1971.

## COUNTRY WATER SUPPLIES

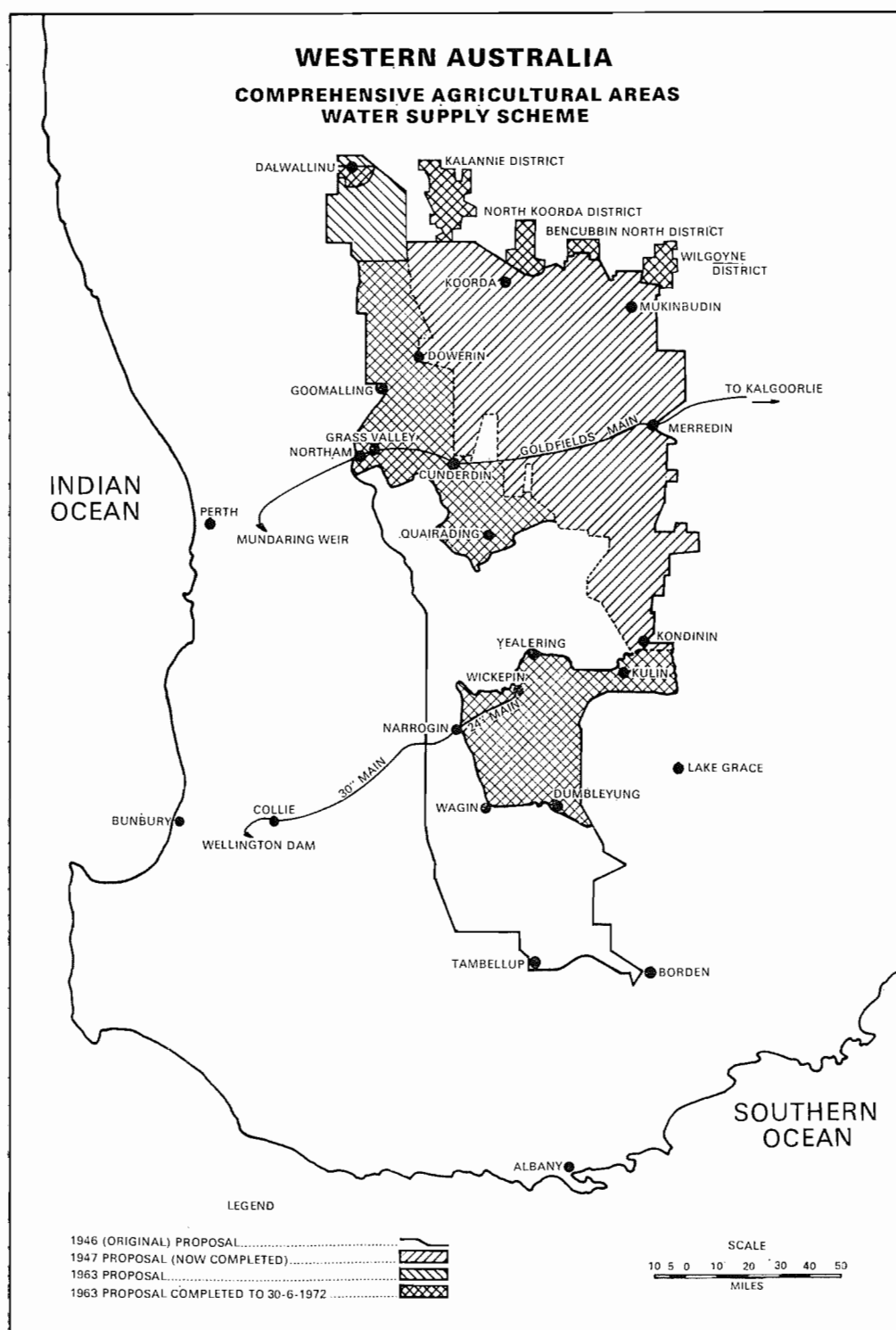
### **Supplies controlled by the Public Works Department**

Since 1947 enlargement and extension of the Goldfields and Agricultural Water Supply and the development of the Great Southern Towns Water Supply have been carried out mainly in accordance with a project known as the Modified Comprehensive Scheme. A proposal for a comprehensive water supply scheme was first submitted by the State Government to the Commonwealth Government in January 1946 when applying for financial assistance in its construction. The initial plan was intended to supply water to towns and farms in an area of 11·6 million acres in mixed farming (cereal and sheep) districts of Western Australia, as well as to increase the supply to the Eastern Goldfields. A committee appointed by the Commonwealth Government to consider the State's submission reported that certain areas within the scheme had a higher priority than others. As a result, the project was greatly reduced in scope and a modified scheme, to embrace 4·1 million acres, was agreed to by both Governments and adopted in October 1947. The extent of the scheme as originally proposed, and as modified, is shown on the map on page 318. A description of the boundary of the modified scheme is contained in a schedule to the *Agricultural Areas, Great Southern Towns, and Goldfields Water Supply Act, 1947* (State), which gave parliamentary approval of the undertaking. Commonwealth financial aid was provided by means of the *Western Australia Grant (Water Supply) Act 1948* (Commonwealth) and later amendments, which authorised reimbursement to the State of one-half of its expenditure on the scheme, up to a maximum grant of \$10 million.

The modified scheme was completed in 1961, the total expenditure amounting to \$20·6 million. A request made by the State Government in 1960 for a grant equal to half the cost of extending the scheme virtually to the boundary as first proposed in 1946 was rejected by the Commonwealth Government. Following this rejection the State Government embarked on a necessarily limited programme financed from its own loan moneys, the policy being to restrict extensions to supply certain towns within the original area and farm lands adjacent to pipelines. A further request was made by the State Government in 1963 for a grant of \$10·5 million payable over a seven-year period and representing one-half of the estimated cost of proposed extensions which would increase by 3·7 million acres the area served by the scheme. The Commonwealth agreed to provide assistance in the form of an interest-bearing loan up to a maximum of \$10·5 million, advances to be made during a period of eight years commencing with the financial year 1965-66. Legislative authority for the loan is given by the *Western Australia (South-west Region Water Supplies) Agreement Act 1965* (Commonwealth). The map on page 318 shows the additional areas to be reticulated under the 1963 proposals and the portion completed at 30 June 1972.

### **Goldfields and Agricultural Water Supply**

The original purpose of this undertaking, which was formerly known as the Goldfields Water Supply was to supply water for the Coolgardie and the Kalgoorlie-Boulder areas. To provide conservation, the Helena River was dammed near Mundaring, and on completion of the reservoir in 1902 it had a capacity of 4,655 million gallons. The increasing demand for water in the area served made it necessary to augment supplies.



This was achieved by raising the wall 32 feet to a height of 132 feet and when the work was completed in 1951 the enlarged capacity of the reservoir was 15,154 million gallons. The capacity has since been further increased to 16,966 million gallons by the erection of adjustable steel crest gates four feet in height. In 1972 the Lower Helena Pipehead Dam, some five miles below Mundaring Weir, was brought into operation, water being pumped from this source to augment the supply from this reservoir. The main pipeline between Mundaring and Kalgoorlie is 344 miles long. It is for the most part 30 inch diameter steel but has 48 inch, 42 inch and 36 inch pipe in the western portion. The pipeline is equipped with fifteen pump stations. The maximum pumping capacity from Mundaring Weir is 26 million gallons per day. The total capacity of all receiving, regulating, standby and service tanks (including four standby reservoirs at Kalgoorlie with a combined capacity of 74 million gallons) is 254 million gallons.

At 30 June 1972 the Goldfields and Agricultural Water Supply was serving 112 towns and water was being reticulated to farms in an area of 5·8 million acres. The number of services, length of water mains and consumption for the years 1966-67 to 1970-71 are given in the following table.

GOLDFIELDS AND AGRICULTURAL WATER SUPPLY

Year	Number of services (a)	Mileage of water mains (a)	Consumption (a) (million gallons)						
			Domestic	Commercial	Industrial (including railways)	Mining	Farms and market gardens	Other	Total
1966-67	25,554	4,029	1,026	138	285	569	694	262	2,974
1967-68	26,305	4,187	1,130	142	251	579	689	285	3,077
1968-69	24,973	4,197	1,139	191	259	620	734	294	3,237
1969-70	25,742	4,268	1,259	246	238	803	800	319	3,665
1970-71	26,046	4,538	1,224	162	211	812	827	285	3,521

(a) Figures include amounts consumed from local supplies at Waddouring-Barbalin-Knungajin, Bruce Rock, Narembreen and Kondinin.

Extensions to country towns and agricultural areas have been made from several points along the main pipeline. Norseman is connected by an extension southward from Coolgardie. A branch from this main supplies the nickel mining town of Kambalda. From a point west of Merredin water is taken northward to supplement local schemes at Waddouring-Barbalin-Knungajin. Other extensions north and south of the main pipeline provide water for a number of towns and surrounding districts, including Toodyay, Goomalling, York, Beverley and Bullfinch. A pipeline southward from Merredin to serve Bruce Rock, Narembreen, Kondinin and surrounding districts and Kulin and surrounding districts is linked to an extension south-west from Doodlakine and taken westward to supply Corrigin. A main south from Cunderdin serves Quairading and the intermediate farmlands. Areas north-west of Burracoppin are served by an extension northward from a point east of Merredin, and districts north of Kellerberrin by a pipeline connecting Kellerberrin to the Waddouring-Barbalin-Knungajin system already mentioned. Water is taken northward from Cunderdin through Minnivale to a point near Kokardine. Extensions westward, eastward and northward from this pipeline serve a number of towns and localities, including Dowerin, Wyalkatchem, Yelbeni, Koorda, Kalannie, Pithara, Ballidu, Dalwallinu and Wongan Hills, and surrounding farm lands. An extension northward from the main pipeline serves Koolyanobbing, where iron ore is mined.

### Great Southern Towns Water Supply

The Great Southern Towns Water Supply serves towns on the Great Southern Railway from Brookton to Katanning, as well as a number of other towns. Water is drawn from Wellington Dam which also supplies the Collie River Irrigation District. Work on the raising of the wall of the Dam was completed in 1960 and, with a capacity of 40,790 million gallons, it is now the largest in the State. Water is taken through Narrogin to Wickpin by means of a main pipeline 106 miles long. In addition to the pumping installation at the dam site, there are stations at a point twenty-eight miles east of the dam

and at Narrogin. From Narrogin, pipelines extend forty miles northward to Brookton and fifty-nine miles southward to Katanning. A branch westward from Katanning serves the town of Kojonup and a second branch extends south-eastward through Broomehill to Gnowangerup. From Wickepin the pipeline extends southward to Dumbleyung, eastward to Kulin and northward to Bullaring through Yealering. A pipeline eleven miles long supplies water to a power station constructed for the State Electricity Commission at Muja, south-eastward from Collie.

At 30 June 1972 the Great Southern Towns Water Supply was serving thirty towns. Details of the number of services, length of water mains and consumption for the years 1966-67 to 1970-71 are given in the following table.

GREAT SOUTHERN TOWNS WATER SUPPLY

Year	Number of services	Mileage of water mains	Consumption (million gallons)					Total
			Domestic	Com-mercial	Industrial (including railways)	Farms and market gardens	Other (a)	
1966-67 ....	8,161	452	341	41	354	33	69	840
1967-68 ....	8,507	530	361	46	179	35	69	689
1968-69 ....	8,891	536	392	49	144	42	87	714
1969-70 ....	9,584	690	460	52	291	59	106	969
1970-71 ....	10,006	774	444	50	175	88	84	841

(a) Excludes mining, for which no services were provided by the Public Works Department.

### Supplies to other Country Towns

One hundred and thirty towns and localities are supplied with water from stream flow, dams, tanks, wells and bores, the schemes being administered under the provisions of the *Country Areas Water Supply Act, 1947-1964*. The following table gives, for these local schemes, the number of services, length of water mains and consumption for the years 1966-67 to 1970-71.

PUBLIC WORKS DEPARTMENT: LOCAL SCHEMES

Year	Number of services	Mileage of water mains	Consumption (million gallons)						Total
			Domestic	Com-mercial	Industrial (including railways)	Mining and shipping	Farms and market gardens	Other	
1966-67 ....	23,745	833	1,173	281	262	20	34	292	2,061
1967-68 ....	25,372	857	877	254	210	17	16	241	1,615
1968-69 ....	27,481	945	1,515	364	292	15	56	355	2,597
1969-70 ....	30,182	1,013	1,949	464	353	26	59	389	3,240
1970-71 ....	32,642	1,125	2,236	530	467	49	47	425	3,756

The Public Works Department is also responsible for the provision and maintenance of tanks and wells as a source of cartage water for a number of small communities in gold-mining and agricultural areas.

### Other Country Water Supplies

As well as the schemes controlled by the Public Works Department, there are four local Water Boards operating under the *Water Boards Act, 1904-1969* which also draw supplies from stream flow, dams, tanks, wells and bores. In addition, some local authorities exercise powers under the *Local Government Act, 1960-1972* to supply water within their boundaries. There are still, however, a large number of individual farms and pastoral stations which are not connected to public schemes and are therefore obliged to provide their own supplies. The Forests Department and sawmilling companies operate schemes to supply water to their mill towns. In a number of ports and mining

towns in the North-West of the State, mining companies are responsible for the provision of their own water supplies, and while the principal source of supply is underground reserves, desalination of sea water is also being used.

Railways of the Commonwealth and State Governments make independent provision for supplies of water for their own purposes, although considerable additional quantities are consumed by the railways from other sources, such as those controlled by the Public Works Department and the Metropolitan Water Supply, Sewerage, and Drainage Board.

### UNDERGROUND WATER

Considerable use is made of groundwater by individual farmers, pastoralists, market gardeners, etc. and it is estimated that over 50,000 bores are in use in the State. The quality of the water varies from place to place and much of it is too saline for irrigation or even stock. Both pressure waters and non-pressure waters are used to supply or augment the supplies of numerous towns, including such major centres as Perth, Albany, Bunbury, Busselton, Carnarvon, Dampier, Esperance, Exmouth, Geraldton and Port Hedland, and the list is growing.

Industries also are using groundwater in substantial quantities, particularly in the processing of titanium, iron, and alumina. Recent mineral discoveries in several areas have given rise to very large demands for water, the search for which has had to be intensified. Marked advances in the knowledge of aquifers and quality of water in the main sedimentary basins have been made as a result of extensive geological surveys and exploratory drilling by the Geological Survey (a branch of the Department of Mines), several oil companies, and developmental drilling by the Public Works Department, and the Metropolitan Water Supply, Sewerage, and Drainage Board.

The Public Works Department and the Metropolitan Water Supply, Sewerage, and Drainage Board are responsible for all developmental works. The Geological Survey is responsible for all exploratory works, as well as for investigating and assessing the State's groundwater resources, and advising local government authorities, private industry and individuals on groundwater problems.

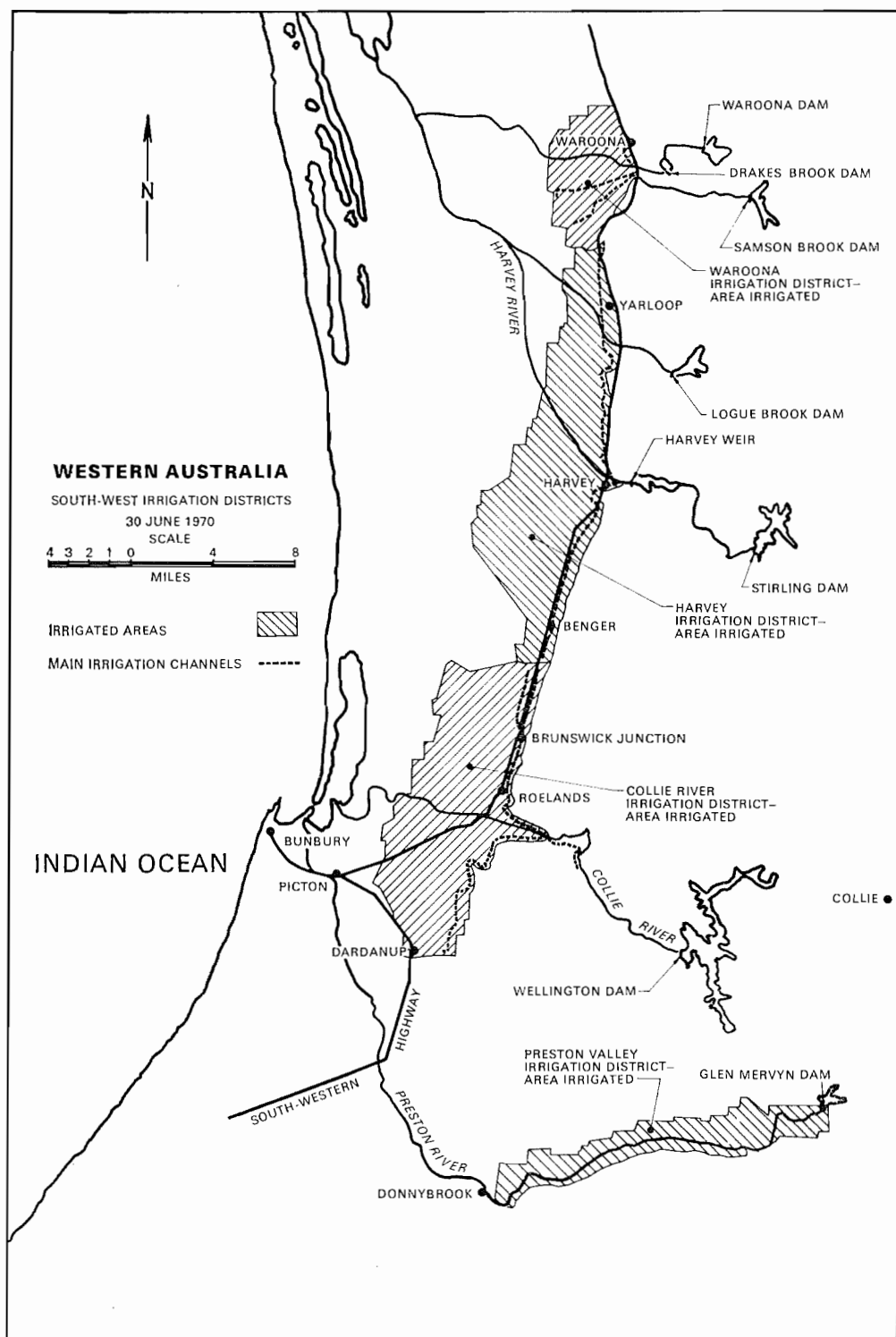
### SOUTH-WEST IRRIGATION SCHEMES

Irrigation schemes have been established by the State Government on the coastal plain south of Perth in the Waroona, Harvey, Collie River and Preston Valley Irrigation Districts between Waroona and Donnybrook, the water being channelled from dams in the adjacent Darling Range.

Specialist advice on irrigation farming methods is available through the Department of Agriculture and the properties are watered on a rotational plan, according to the 'Zone', or section of the District, within which the farms are situated. Three free waterings are given each season on all rated land. All other waterings are charged for and special waterings, out of rotation, are available at a higher fee.

The Harvey Irrigation District, opened in 1916, was the first large-scale project. Harvey Weir, with a capacity of 520 million gallons on completion, was constructed as the source of water supply and the service initially provided was for 3,000 acres of land for citrus growing.

The success of dairying and stock raising and to a lesser extent vegetable growing, which have replaced citrus culture, has led to gradual but substantial extensions of the South-West irrigation area. The damming of Drakes Brook in 1931 and Samson Brook in 1941 provided a storage capacity of 2,281 million gallons which, by alterations to Samson Brook Dam in 1960, has been increased to 2,525 million gallons and is used for the irrigation of 3,526 rated acres in the Waroona Irrigation District. Construction of a third storage to serve the Waroona District was begun in 1963. Known as Waroona Dam, it was built on Drakes Brook about three miles up-stream from the existing Drakes Brook Dam. Its capacity is 3,290 million gallons and storage, which commenced in June 1966, was available for the 1966-67 irrigation season. In 1931 the capacity of Harvey Weir was enlarged to 2,275 million gallons (including flashboard storage) and in 1948



Stirling Dam, with an original capacity of 12,060 million gallons (increased to 12,552 million gallons by alterations in 1958), was completed further up-stream on the Harvey River. These works enabled the Harvey Irrigation District to be extended northward to link with the Waroona District. Logue Brook Dam, with a capacity of 5,358 million gallons, was completed in 1963 and provides additional supplies for the Harvey Irrigation District, the rated area of which is 13,536 acres.

During 1969 construction of the Glen Mervyn Dam on a tributary of the Preston River near Mumballup was completed. Water from this dam is made available each summer for controlled release into the Preston River when the natural stream flow is insufficient for the irrigation of orchards downstream from Donnybrook.

Concurrently with developments in the Harvey and Waroona Irrigation Districts, action was taken to conserve water for the Collie River Irrigation District and Wellington Dam on the Collie River was completed in 1933. In view of its importance, not only to irrigation projects but also to the Great Southern Towns Water Supply, the wall of this reservoir has been raised and when work was completed in 1960 its capacity of 8,000 million gallons was increased to 40,790 million gallons. It serves an area of 11,739 rated acres in the Collie River Irrigation District, which extends from Brunswick Junction to Dardanup.

Details of irrigation in each district in the years 1969-70 and 1970-71 are given in the following table.

IRRIGATION: SOUTH-WEST SCHEMES

Particulars	Irrigation district								Total	
	Waroona		Harvey		Collie River		Preston Valley (a)			
	1969-70	1970-71	1969-70	1970-71	1969-70	1970-71	1969-70	1970-71	1969-70	1970-71
Area watered—										
Pasture .... acres	4,499	4,349	14,237	14,693	14,279	14,265	....	....	33,015	33,307
Fodder crops ..	350	339	115	367	720	530	....	....	1,185	1,236
Potatoes .... "	....	....	....	8	153	75	....	....	153	83
Other vegetables ..	245	265	49	56	31	34	....	....	325	355
Orchards .... "	....	....	203	184	57	55	497	451	757	690
Total ..	5,094	4,953	14,604	15,308	15,240	14,959	497	451	35,435	35,671
Acre waterings (b)....	36,453	30,433	120,096	102,576	107,900	91,741	n.a.	n.a.	*264,449	224,750
Average number of waterings (c)	7.1	6.2	8.3	6.7	7.7	6.1	n.a.	n.a.	27.5	19.0
Total water gauged at entry to district .... million gal	4,521	3,457	16,287	13,927	16,419	14,935	92	113	37,319	32,432
Dam capacity (d) ..	5,815	5,815	19,865	19,865	40,790	40,790	329	329	66,799	66,799
Length of channels .. miles	46	46	154	155	125	126	....	....	325	327

n.a. denotes 'not applicable'.

(a) Commenced in 1969-70. (b) Area watered multiplied by number of waterings. Figures shown represent the sum of acre waterings for individual holdings in each district. (c) Total acre waterings divided by total area watered. (d) Excludes flashboard storage. \* Revised.

## NORTHERN IRRIGATION SCHEMES

Although not yet comparable in size with the South-West undertakings, the irrigation areas at Carnarvon and on the Ord and Fitzroy Rivers in the northern portion of the State are of increasing significance.

**Carnarvon.** During the past forty years a centre of tropical agriculture has been developed at Carnarvon, near the mouth of the Gascoyne River. It produces over half of the bananas consumed in Western Australia and is a major supplier to the Perth market of out-of-season vegetables. This centre was, in 1970-71, the largest producer in the State of runner beans, water melons, pumpkins, cucumbers and capsicums and the second largest producer of rock melons and tomatoes. Carnarvon also exports beans, cucumbers and pumpkins to the Eastern States.

Agricultural development has been made possible only by irrigation, as the rainfall is extremely variable and averages little more than nine inches per annum. Each holding

has its own irrigation plant and, wherever possible, the pumping unit is installed on a bank of the Gascoyne River. Usually the river bed is exposed, as surface flow does not occur regularly each year. Concrete-lined wells have been sunk into the river sands and the water obtained is pumped either to storage tanks or direct to the plantation feeder channels, from which it is distributed among the plants by furrows. Because of the limitations of supply from the river sands, the State Government has instituted controls over the quantity of water pumped by growers, has commenced to develop up-river sources and is delivering supplementary water by pipeline to sixty-five plantations. A tropical research station is maintained at Carnarvon by the Department of Agriculture. To the early activities of this research station may be credited much of the success of the Carnarvon plantations, notably in the field of plant selection and pest control, and experimental work is being continued.

**Ord River.** The Ord River in the Kimberley Division traverses a tropical area which receives monsoonal rains of irregular incidence and quantity, varying from an annual mean of twenty inches in the south to thirty inches in the north. Investigations at the Kimberley Research Station, established in 1945 and operated by the Department of Agriculture in conjunction with the Commonwealth Scientific and Industrial Research Organization, have shown that the climate and soil conditions are favourable for the cultivation of sorghum, sugar-cane, rice, cotton, safflower and various oil seeds. Following these investigations the State Government, with Commonwealth financial assistance, embarked on a project to provide water supplies for irrigation in the area.

The Ord Irrigation Project provides for the development of 178,000 acres of land agriculturally and topographically suitable for irrigation. The project comprises four stages, the first was the construction of a diversion dam to supply water for an area of 30,000 acres and the second, the building of a main storage dam with a capacity of 4.6 million acre-feet (equivalent to more than 1,253,000 million gallons). The other stages are the progressive development of the whole 178,000 acres and the construction of a hydro-electric power station.

The diversion dam, situated at Bandicoot Bar about sixty-five miles by road south-east of Wyndham and thirty miles downstream from where the Ord River Dam now stands, was officially opened on 20 July 1963. The capacity of the diversion dam is 21,468 million gallons and irrigation from the dam commenced in April 1963.

There are thirty farms included in the first stage of the project and each has an approximate area of 660 acres. Cotton is the principal crop, although small areas of other crops are being grown. Fattening of cattle on irrigated fodder crops shows promise as another alternative.

An area of 2,400 acres, originally a pilot farm developed by a private company to conduct farm-scale trials under an agreement with the State Government, later became the company's property under the agreement. Large quantities of grain sorghum have been grown on this property by the company which is concentrating on cattle fattening in feed lots.

The diversion dam was recognised by the Commonwealth Government in August 1959 as an approved project within the meaning of the *Western Australia Grant (Northern Development) Act 1958-1959* (Commonwealth). This legislation provided for payment by the Commonwealth to the State Government of a non-repayable grant of \$10 million for development of the part of the State north of 20°S. latitude. Of this grant \$8.2 million was spent on the diversion dam. In February 1963 a further approach was made to the Commonwealth requesting an amount of \$3.3 million for the completion of channels and drains required to develop the whole of the 30,000 acres included in the first stage of the project. The request was approved in August 1963 and moneys made available by way of grant in terms of the *Western Australia (Northern Development) Agreement Act 1963*.

In November 1967, the Commonwealth Government approved the plan for the second phase of the Ord River Irrigation Scheme and agreed to provide financial assistance to the State for the works involved. Agreement as to the terms and conditions for financing the second phase of the scheme was announced in March 1968. In terms of the *Western*

*Australia Agreement (Ord River Irrigation) Act 1968* the Commonwealth agreed to provide financial assistance to the State in an amount equivalent to expenditure on the works, up to a maximum of \$48.18 million. The assistance takes the form of a non-repayable grant for the construction of the main Ord dam (\$21.60 million) and an interest-bearing loan for the associated irrigation and drainage facilities.

The Ord River Dam was constructed over three dry seasons, 1969 to 1971, and was officially opened on 30 June 1972. A pump station and irrigation supply facilities to bring 5,000 acres of new irrigation farmland into production on Packsaddle Plain was completed in December 1970. An extension of the scheme to cover 1,900 acres on Ivanhoe Plain is scheduled for completion in November 1973.

**Fitzroy River.** On the Liveringa flood plain, grain and fodder sorghums are being produced at Camballin, sixty-five miles south-east of Derby. Irrigation water from the Fitzroy River is diverted by means of a weir with a capacity of 1,025 million gallons constructed across the river. It is diverted through Uralla Creek, an anabranch, for seventeen miles to another dam with a storage of 1,209 million gallons constructed on Uralla Creek. Later it will be necessary to construct a storage dam on the upper reaches of the Fitzroy River for the large-scale developments envisaged for this area.

During 1970-71 the company concerned with the development used 1,982 acre feet of water for the irrigation of large-scale sorghum trials with a view to the production of grain sorghum and quality beef. In 1971-72, 7,462 acre feet of water were used on 4,290 acres of crop, mainly grain sorghum. The company has constructed a feed lot to handle 2,500 head of cattle at one time.

Details of irrigation in the Ord and Camballin Irrigation Districts for the years 1969-70 and 1970-71 are given in the following table.

IRRIGATION: ORD AND CAMBALLIN DISTRICTS

Particulars	Irrigation district				Total	
	Ord		Camballin			
	1969-70	1970-71	1969-70	1970-71	1969-70	1970-71
Area watered .... acres	9,497	11,797	600	1,980	10,097	13,777
Acre waterings (a) ....	91,826	91,148	(b)	(b)	(c)	(c)
Average number of waterings (d) ....	9.7	7.7	(b)	(b)	(c)	(c)
Total water gauged at entry to district million gal	14,294	15,290	261	540	14,555	15,830
Dam capacity ....	21,468	21,468	(e) 2,560	(e) 2,560	(e) 24,028*	(e) 24,028
Length of channels .... miles	69	69	20	20	89	89

(a) Area watered multiplied by number of waterings. Figures shown represent the sum of acre waterings for individual holdings in each district. (b) Not applicable as irrigation is continuous. (c) See footnote (b). (d) Total acre waterings divided by total area watered. (e) Includes 326 million gallons of natural storage. \* Revised.

**Dunham River.** In addition to the government irrigation undertakings mentioned above, a private scheme is now in course of development in the Dunham River valley south of its confluence with the Ord River. An agreement between the Government of Western Australia and Goddard of Australia Pty. Ltd., subsequently ratified by the *Irrigation (Dunham River) Agreement Act, 1968*, authorises the company to construct a dam on Arthur Creek, a tributary of the Dunham River, to irrigate the pilot area. The company, in terms of the agreement, is required to subdivide the pilot area into not more than ten holdings each containing an area of approximately 1,000 acres, of which some 600 acres will be irrigated. By early 1972 construction of the Arthur Creek Dam had been completed and the irrigation system was serving seven 1,000-acre farm units which are being progressively developed.

If the company demonstrates to the Government that it is both practical and economically sound to develop the pilot area for agricultural purposes by way of closer settlement in holdings of about 1,000 acres, the company will be authorised to proceed with phase 2 of the plan—the construction of a dam on the Dunham River and a suitable water distribution system. The additional area involved in the second phase of the scheme amounts to approximately 34,000 acres.

## WATER RESOURCES INVESTIGATION AND MEASUREMENT

Work on the investigation and measurement of the water resources of Western Australia, both surface and underground, has been accelerated in recent years partly due to the activities of the Australian Water Resources Council, which was established by joint action of the Commonwealth and State Governments in 1962. The Council comprises Commonwealth and State Ministers primarily responsible for water resources, with the Commonwealth Minister for National Development as Chairman.

The primary objective of the Council is the provision of a comprehensive assessment on a continuing basis of Australia's water resources, and the extension of measurement and research so as to provide a sound basis for the planning of future development.

In terms of its main objective, the Council in 1964 recommended, and the Commonwealth and State Governments agreed, that there should be an accelerated programme of establishment of stream gauging stations and investigation of underground water. Financial assistance to the States was rendered by the Commonwealth under the *States Grants (Water Resources) Act 1964*, subject to certain qualifying expenditure by each State. Under the *States Grants (Water Resources Measurement) Act 1967*, financial assistance to the States was continued for a further three years until 30 June 1970 and extended to 30 June 1973 by the *States Grants (Water Resources Measurement) Act 1970*.

The total expenditure by the Western Australian Government on water resources measurement, including grants received from the Commonwealth, is given in the following table.

EXPENDITURE ON WATER RESOURCES MEASUREMENT (a)  
(\$)

Year	Surface water	Underground water
1964-65 ....	258,200	430,000
1965-66 ....	311,270	514,620
1966-67 ....	351,700	384,000
1967-68 ....	364,299	569,664
1968-69 ....	442,681	527,927
1969-70 ....	498,519	776,011
1970-71 ....	521,695	753,471
1971-72 ....	655,494	812,841

(a) Including Commonwealth grants.

## Surface Water

To enable rivers and streams to be utilised efficiently, the quantity and quality of water flowing in many rivers and streams throughout Western Australia are being measured. These vary from comparatively small streams, to relatively large rivers such as the Ord River in the Kimberley.

The number of stream-gauging stations in operation is increasing each year and at 30 June 1972 totalled 193, compared with 180 at 30 June 1971. All stations are under the control of the Public Works Department.

The distribution of the gauging stations in the various drainage divisions is as follows:

South-West Coast Division (Esperance to the Hill River)	116
Indian Ocean Division (Arrowsmith River to the De Grey River)	35
Timor Sea Division (Broome to the Ord River)	34
Western Plateau Division	8
Total	193

### Underground Water

To locate and measure the quantity and quality of underground water available to supply the ever-growing needs of town water supplies, industries, farmers, pastoralists, etc. a considerable amount of investigation, including drilling, is in progress in Western Australia. The work is being carried out by the Department of Mines, the Public Works Department, and the Metropolitan Water Supply, Sewerage, and Drainage Board, with the Department of Mines assuming the major responsibility for hydro-geological work.

Underground water exploration projects in course during 1971-72 included major investigations of the alluvial plains of the De Grey River to provide a new source of water for Port Hedland, and of shallow aquifers north of Perth, which may provide appreciable quantities of water to augment Perth's water supply. Other investigations designed to locate underground water to provide or augment the water supplies for Albany, Calingiri, Eaton, Esperance, Horrocks, Leeman and various towns in the Shire of West Pilbara were also carried out during the year.

## SEWERAGE SCHEMES

### Metropolitan Sewerage

There are three major sewerage systems and five smaller systems administered by the Metropolitan Water Supply, Sewerage, and Drainage Board within the metropolitan area.

Sewage from the major systems either gravitates or is pumped through the pipe systems to treatment works at Subiaco, Swanbourne and Woodman Point. After treatment the effluent is discharged into the Indian Ocean, some distance from the coast under a substantial depth of water.

The five smaller systems are served by treatment plants at Canning Vale, Westfield, Kwinana, Eden Hill and Kelmscott, the treated effluent being disposed of in sandy soil in the vicinity of the plant sites.

The following table shows the number of services, population served and the length of sewer mains under the control of the Metropolitan Water Supply, Sewerage, and Drainage Board at 30 June for each of the years 1967 to 1971.

METROPOLITAN SEWERAGE SYSTEMS

At 30 June—		Services	Population served	Length of sewers
		number	persons	miles
1967	....	71,188	260,000	848
1968	....	72,177	280,048	886
1969	....	74,018	281,651	931
1970	....	76,638	296,000	988
1971	....	81,940	313,059	1,136

### Country Towns Sewerage

A number of towns outside the metropolitan area have sewerage schemes which were constructed pursuant to the *Country Towns Sewerage Act, 1948-1967*. In addition, a further eight schemes have been provided by local government authorities or as private development in mining areas by certain mining companies.

Some expansion in local authority construction can be anticipated as a result of a State subsidy scheme designed to assist local government authorities in developing this service. The first grants to local authorities under the scheme were made available in 1971-72.

The following table shows the number of towns sewered, the area sewered and the number of services controlled by the Public Works Department at 30 June for each of the years 1967 to 1971. Details of the individual towns serviced are given in the succeeding table.

## COUNTRY SEWERAGE SYSTEMS

At 30 June—	Number of towns sewered	Area sewered	Length of sewers	Services
	number	acres	miles	number
1967 ....	20	4,317	162	6,417
1968 ....	21	4,325	173	7,201
1969 ....	22	4,882	186	7,967
1970 ....	25	5,374	209	*8,846
1971 ....	25	6,198	229	10,178

\*Revised.

## COUNTRY SEWERAGE SYSTEMS: AREA SEWERED, SEWERS AND NUMBER OF SERVICES

Town	At 30 June 1970			At 30 June 1971		
	Area sewered	Length of sewers	Services	Area sewered	Length of sewers	Services
	acres	miles	number	acres	miles	number
Albany ....	1,093	44	2,207	1,128	46	2,306
Bunbury ....	226	12	402	261	13	555
Collie ....	615	28	956	627	26	989
Corrigin ....	98	4	110	137	5	127
Denmark ....	10	2	21	10	2	21
Exmouth ....	163	5	219	203	7	289
Geraldton ....	70	4	270	70	4	270
Gnowangerup ....	114	3	86	150	4	103
Karratha ....	87	5	2	388	9	477
Katanning ....	269	8	274	303	10	303
Kellerberrin ....	69	2	57	69	3	63
Kojonup ....	88	4	55	95	4	118
Kununurra ....	58	2	47	141	3	73
Meckering ....	55	2	27	61	2	40
Merredin ....	130	5	211	154	6	229
Mount Barker ....	56	2	53	56	2	53
Narrogin ....	356	11	546	426	13	609
Northam ....	996	35	2,198	1,001	35	2,229
Pingelly ....	133	3	59	133	4	64
Port Hedland ....	172	7	313	173	7	396
South Hedland ....	46	4	50	139	6	110
Three Springs ....	118	3	133	118	3	142
Wagin ....	158	6	277	158	6	293
Wundowie ....	95	4	193	95	4	195
Wyalkatchen ....	99	4	80	99	4	124
Total ....	5,374	209	8,846	6,198	229	10,178

## CHAPTER VIII—PRODUCTION

Secondary industry in Western Australia has become increasingly important and in recent years almost equalled primary industry in terms of net value of production. This relationship, however, is being materially affected by the development of recent major discoveries of minerals, including iron ore, nickel, petroleum and bauxite. Primary production, and in particular the agricultural, pastoral and mining sectors, may therefore still be regarded as having the greater influence on the economy of the State.

Farming has been carried on from the earliest years of settlement but its development was originally restricted by inadequate transport, shortage of labour and a limited local consumption. These difficulties were partly overcome by the introduction of convict labour during the period from 1850 to 1868, but the Colony was still dependent on the importation of many items of foodstuffs when the position was aggravated by a great influx of people attracted by the discovery of gold in the Kimberley in 1885 and by the spectacular finds in the 1890s at Coolgardie and Kalgoorlie and at other places on the eastern goldfields. Between 1890 and 1905 the population increased from 48,502 to 250,138 and, despite an increase in the area under crop from 69,700 acres to 364,700 acres during these years, agricultural production remained insufficient to meet local demands.

A decline in gold mining which began after 1903 caused a growing interest in farming as an alternative pursuit and by 1911 the area under crop had increased to more than 1 million acres, of which 612,000 were sown to wheat for grain. Since that time, although there have been some fluctuations in agricultural activity, the area under crop has risen steadily, to reach a peak of almost 9·7 million acres in 1969-70. In 1970-71 the area under crop was just under 9·5 million acres, of which 5·8 million acres were sown to wheat for grain.

Circumstances similar to those applying to agriculture stimulated the growth of the pastoral industry and large cattle and sheep stations were established on land leased from the Crown, mainly in the northern and north-western areas and in parts of the eastern goldfields. The number of cattle in the State increased from 131,000 to 825,000 and of sheep from 2,525,000 to 5,159,000 between 1890 and 1910, when nearly three-fifths of the sheep were in the pastoral areas and little more than two-fifths in the agricultural areas as defined on pages 357-8. With the development of mixed wheat and sheep farming the total number of sheep has risen and in 1971 was 34·7 million, but only about 10 per cent are now in the pastoral areas. Of the total of 1,781,349 cattle in the State in 1971 over 35 per cent were in the Kimberley Division where cattle are raised almost exclusively for meat production.

The contribution of mining to the Western Australian economy is substantial and in 1970-71 the major minerals in terms of value of production were iron ore, petroleum, nickel, gold, construction materials, mineral beach sands, bauxite, coal, salt and tin. Production of minerals is expected to increase still further as deposits of petroleum, nickel, iron ore and bauxite in particular are developed.

Dairying, with an average annual milk production over the last five years of almost 56 million gallons, is a significant factor in primary industry.

The demand for jarrah and karri hardwoods has long been a feature of the State's economy. Indiscriminate cutting in earlier years and disregard of the need for preservation and regeneration threatened the survival of the timber industry. However, governmental controls over forestry operations and a policy of reforestation introduced in 1918 have proved to be effective and the industry is now established on a firm basis, timber forming an important component of primary production.

The overseas demand for rock lobsters, which developed in post-war years, has given continued impetus to the fishing industry. The total value of the catch of fish, crustaceans and molluscs in 1970-71 was \$22,563,000, to which rock lobsters contributed \$18,040,000. Interest in whaling was evident in the first years of colonisation, exports of oil and whale-bone being recorded in the earliest of the colonial Blue Books. Whaling activity since then has fluctuated widely and at times ceased altogether. The latest large-scale revival of the industry began in 1949 when a station at Point Cloates on the north-west coast was reopened after a lapse of more than twenty years. Since the 1963 season, activity has declined considerably following the imposition by the International Whaling Commission of a total ban on the taking of humpback whales. The only station now operating is at Frenchman Bay near Albany from which sperm whaling is conducted.

Secondary industry has expanded substantially in recent years and may be expected to expand even more rapidly in future. There are a growing number of factories which rely mainly on the interstate and overseas export of their products and this recent trend indicates that dependence primarily on local demand is becoming less serious as an obstacle to development than it has been in the past.

### GEOGRAPHICAL DISTRIBUTION OF INDUSTRY

The following brief survey of production in the Statistical Divisions of the State should be read in conjunction with the map appearing at the back of the Year Book. Reference should also be made to the *Note on Statistical Divisions* preceding the Index.

The Perth Division (2,073 square miles), which has a population of 703,199 (30 June 1971) or over two-thirds of the State total, is the principal centre of manufacturing activity with establishments engaged in most types of secondary industry. Many of the larger industrial establishments located in the Perth Division are concentrated in the Kwinana area where development has been encouraged by the dredging of a deep-water channel and the construction of harbour facilities to meet the requirements of large-scale projects.

Farm activity for the Division is confined mainly to the production of citrus, pome and stone fruits, eggs, poultry, vegetables and whole milk. Production is principally for consumption within the metropolitan area but small quantities are exported. In addition, most of the State's viticultural industry is carried on in this region. Table grapes, currants, raisins and sultanas are produced for the local market and for export, and wine-making grapes are grown for use in local wineries. A well-established fishing industry operates from the port of Fremantle, the main catch being rock lobsters. Bauxite is mined at Jarrahdale for treatment at an alumina refinery at Kwinana.

The South-West Division (11,031 square miles) is the main dairying area of the State and produces a large proportion of the total output of whole milk and of butter, cheese and condensery products. Pig raising is carried on both separately and as an ancillary activity to dairying. The rearing of cattle for meat production is also of major importance. Apples, pears, stone fruits, potatoes and other vegetables are grown extensively. Vegetable crops (principally peas and beans for processing) are grown in the Manjimup area. Timber is one of the main products, being milled over a wide area, and coal, bauxite, mineral sands, and tin are the principal minerals produced. Commercial fishing is centred on Mandurah, Bunbury and Busselton. The factories of the Division include sawmills, butter, cheese and milk-processing plants, meat works, a superphosphate works, a large chemical factory producing titanium oxide pigments and two major electricity generating stations. A major bauxite-alumina complex operates in the Pinjarra area.

The Southern Agricultural, Central Agricultural and Northern Agricultural Divisions, which together cover 84,356 square miles, comprise the principal cereal-growing districts and produce the bulk of the State's wheat, oats and barley crops. The development of clover ley farming over a wide area has led to a remarkable increase in the number of sheep carried on farms in these Divisions and the total, 27.3 million, comprises over three-quarters of the State's sheep population. There has been a corresponding rise in wool production which now represents almost 79 per cent of the State's clip. The raising of

cattle, principally for meat production, has also increased in importance and the number kept for all purposes is now 418,456 or more than 23 per cent of the State total. Tomatoes are grown in the area around Geraldton and citrus fruits in the Chittering area. Cattle for dairying and meat production, apple and pear growing and potato growing are important in the districts around Denmark, Albany and Mount Barker while large quantities of peas for processing are produced around Mount Barker and Gnowangerup. Other crops of increasing importance are lupins and rapeseed. Whaling and fishing are carried on from Albany, on the south coast, and the important rock lobster-fishing industry on the lower west coast is based on the Abrolhos Islands, Geraldton, Dongara, Jurien Bay, Cervantes and Lancelin Island. Lead has been mined near Northampton for many years and the mining of iron ore, which is being shipped to Japan from Geraldton, commenced at Koolanooka in 1966.

Factories in these Divisions include flour-mills, superphosphate works, butter factories, sawmills, a woollen mill, a charcoal iron and wood-distillation plant, a fish cannery and a meat works.

The North-West Division (77,612 square miles) has 1·39 million sheep, representing 4 per cent of the State total, and 38·1 thousand cattle. Tropical agriculture has been developed on the Gascoyne River at Carnarvon where bananas and beans and other vegetables are grown. An important prawn-fishing industry has been established in the Division, the principal areas being Carnarvon, Exmouth Gulf and Point Samson. Commercial fishermen operate also from Shark Bay. Solar salt projects have been established at Port Hedland and also at Lake MacLeod, about forty miles north of Carnarvon.

The Kimberley Division (162,363 square miles), with over 624 thousand cattle, or 35 per cent of the State total, and meat works at Wyndham, Derby and Broome, is an important source of beef for export from Western Australia to overseas markets. Broome is also the centre of pearl-shell fishing. Culture pearls are being successfully produced at Kuri Bay, Cygnet Bay and at Port Smith. Iron ore is mined at Cockatoo and Koolan Islands in Yampi Sound. Reference is made on pages 324-5 to agricultural developments at Kununurra on the Ord River and Camballin on the Fitzroy River.

The Eastern Goldfields, Central and Pilbara Divisions, covering a total area of 638,485 square miles, contain the principal gold and mineral fields of the State and almost all the gold produced in Western Australia comes from this area. Iron ore, now the principal mineral in the State, is mined on a large scale in the Pilbara Division and on a smaller scale at Koolyanobbing in the Eastern Goldfields Division. In the Pilbara, plants producing iron ore pellets from iron ore fines commenced operations at Dampier in 1968 and at Cape Lambert in late 1972. Other minerals and ores produced elsewhere in these Divisions include crude petroleum, nickel, beryl, feldspar, gypsum, and ores of copper, manganese, silver, tin and tantalum-columbite. Although mining is the main industry, these Divisions contribute also to pastoral output, the area containing 12 per cent of the sheep and 10 per cent of the cattle in the State. Cereals are grown in the south-western portion of the Eastern Goldfields Division, which produced 11·6 million bushels of wheat, oats and barley in 1970-71.

## Part 1—Primary Production

### LAND UTILISATION ON RURAL HOLDINGS

In 1970-71 there were 22,592 rural holdings in the State, comprising 283·1 million acres of land or just over 45 per cent of the total area of Western Australia.

The total area of rural holdings consisted of 35·3 million acres of cleared land and 247·8 million acres uncleared. Of the cleared land, 9·5 million acres were used for crop, 17·3 million acres were under established pastures and 1·5 million acres were in fallow. The balance of the cleared area, 7·1 million acres, comprised land which was used for grazing or was resting during the season and newly cleared land. The uncleared land is mainly pastoral leases held by sheep and cattle stations.

Land development in the post-war period was stimulated by generally favourable prices for agricultural and pastoral commodities. Special concessions to primary producers under the provisions of the taxation legislation also contributed to the increased capital investment in primary industry. This development, undertaken principally by established farmers and by the War Service Land Settlement Board, was aided by the introduction of modern mechanical methods of land clearing. As a result, the area of cleared land on rural holdings more than doubled, from 14.6 million acres in 1946-47 to 35.3 million acres in 1970-71. In the same period land used for crops increased from 3.5 million acres to 9.5 million acres, with a peak of 9.7 million acres in 1969-70, and the area under established pastures from 2.1 million to 17.3 million acres. The area in fallow, which was 2.1 million acres in 1946-47, has decreased and in 1970-71 it was 1.5 million acres.

Details of land utilisation in the five years 1966-67 to 1970-71 are given in the next table.

#### LAND UTILISATION

Season	Cleared land						Active rural holdings	
	Used for crop (a)	Under established pasture	In fallow	Newly cleared, prepared for next season	Other, used for grazing or resting	Total	Number	Area
	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres		'000 acres
1966-67 ....	8,558	13,018	2,023	1,300	6,970	31,869	23,181	274,765
1967-68 ....	8,883	14,328	1,846	1,357	6,193	32,806	23,116	275,334
1968-69 ....	9,490	15,363	1,828	1,298	5,784	33,762	23,004	276,174
1969-70 ....	9,676	16,472	1,353	990	6,493	34,984	22,937	280,819
1970-71 ....	9,468	17,254	1,463	(b) 7,098		35,283	22,592	283,107

(a) Excludes meadow hay.

(b) Separate figures not available.

The following table shows a classification of rural holdings according to size of holding for 1970-71. For the State as a whole the largest group of holdings is in the size range 1 to 49 acres and the 3,612 holdings concerned represent 16 per cent of the total number of holdings in the State.

The next largest group is holdings in the range 2,000 to 2,999 acres and the 3,039 holdings in this category account for 13 per cent of the total.

#### CLASSIFICATION OF RURAL HOLDINGS ACCORDING TO SIZE OF HOLDING: 1970-71

Area of holdings	In agricultural areas (a)		In pastoral areas (b)		Whole State	
	Number of holdings	Area	Number of holdings	Area	Number of holdings	Area
acres		acres		acres		acres
1 to 49 .....	3,470	51,953	142	2,616	3,612	54,569
50 to 99 .....	658	47,151	26	1,514	684	48,665
100 to 149 .....	643	76,298	5	512	648	76,810
150 to 199 .....	531	89,739	1	160	532	89,899
200 to 299 .....	952	232,126	3	707	955	232,833
300 to 399 .....	791	270,206	....	....	791	270,206
400 to 499 .....	672	299,059	....	....	672	299,059
500 to 599 .....	530	287,362	2	1,000	532	288,362
600 to 699 .....	466	299,990	10	6,645	476	306,635
700 to 799 .....	387	288,673	2	1,431	389	290,104
800 to 899 .....	383	322,576	....	....	383	322,576
900 to 999 .....	380	360,926	1	970	381	361,896
1,000 to 1,999 .....	1,382	1,630,249	6	7,781	1,388	1,638,030
1,400 to 1,999 .....	1,860	3,181,769	2	3,285	1,862	3,185,054
2,000 to 2,999 .....	3,032	7,423,044	7	16,453	3,039	7,439,497
3,000 to 3,999 .....	2,250	7,723,233	4	12,805	2,254	7,736,038
4,000 to 4,999 .....	1,455	6,450,344	2	9,396	1,457	6,459,740
5,000 to 9,999 .....	1,635	10,904,469	2	14,000	1,637	10,918,469
10,000 and over .....	410	20,602,963	490	222,485,587	900	243,088,550
Total .....	21,887	60,542,130	705	222,564,862	22,592	283,106,992

(a) See page 358.

(b) See page 357.

In the next table details of rural land utilisation according to Statistical Division are given for 1970-71. The greatest number of active rural holdings was in the Central Agricultural Division which also had the largest area under crop.

### LAND UTILISATION IN EACH STATISTICAL DIVISION: 1970-71

Statistical Division	Cleared land					Active rural holdings	
	Used for crop (a)	Under established pasture	In fallow	Other, used for grazing or resting	Total	Number	Area
	acres	acres	acres	acres	acres		acres
Perth .....	26,665	219,017	5,452	45,401	296,535	3,663	421,631
South-West .....	93,623	1,554,887	20,132	162,630	1,831,272	4,285	2,654,723
Southern Agricultural .....	1,484,238	5,062,334	262,607	1,055,480	7,864,659	4,654	10,509,214
Central Agricultural .....	4,344,574	5,248,252	488,099	2,606,154	12,687,079	4,863	15,482,802
Northern Agricultural .....	2,700,205	3,914,698	388,319	2,456,502	9,459,724	3,307	15,949,144
Eastern Goldfields .....	796,204	1,244,926	292,085	702,271	3,035,486	1,226	50,881,041
Central .....	3,266	1,540	405	7,563	12,774	159	66,091,706
North-West .....	1,695	61	451	990	3,197	248	41,409,092
Pilbara .....	8	...	9	...	17	58	23,778,874
Kimberley .....	17,181	8,528	5,555	61,238	92,502	129	55,928,765
Total .....	9,467,659	17,254,243	1,463,114	7,098,229	35,283,245	22,592	283,106,992

(a) Excludes meadow hay.

### MACHINERY

The following table shows the principal items of machinery on rural holdings at 31 March in each of the years from 1967 to 1971. Items marked not available are, in general, collected only triennially.

### MACHINERY ON RURAL HOLDINGS

Type	At 31 March—				
	1967	1968	1969	1970	1971
Rotary hoes—					
Self-contained power unit .....	1,823	1,793	1,743	1,671	1,518
Tractor-mounted and trailing types .....	1,513	1,517	1,578	1,622	1,616
Seeding and fertilising machines—					
Grain drills—					
Combine type .....	13,628	13,942	13,954	14,168	14,043
Other types .....	4,192	4,315	3,661	3,499	3,406
Fertiliser distributors and broadcasters—					
Rotary .....	(a)	(a)	9,189	(a)	9,315
Direct drop .....	(a)	(a)	672	(a)	668
Total .....	9,540	10,086	9,861	10,017	9,983
Harvesting machines—					
Grain and seed harvesters (b)—					
Tractor drawn .....	10,003	10,341	9,709	9,317	9,018
Self-propelled .....	1,069	1,325	1,524	1,592	1,727
Total .....	11,072	11,666	11,233	10,909	10,745
Agricultural mowers—					
Reciprocating (cutter bar) types—					
Power driven (incl. power take-off) .....	7,581	7,327	(a)	(a)	6,776
Ground driven .....		416	(a)	(a)	275
Rotary types (including slashers and toppers) .....		2,276	(a)	(a)	2,792
Hay rakes—Side-delivery .....	(a)	4,945	(a)	(a)	5,208
Other hay and agricultural rakes (including buck, dump and root) .....	(a)	(a)	(a)	(a)	3,293
Pick-up balers (including roto-balers) .....	3,624	3,845	3,905	4,113	4,329
Forage harvesters .....	547	558	614	644	626
Potato diggers .....	(a)	455	(a)	(a)	476
Tractors—					
Wheeled .....	(a)	(a)	31,388	(a)	(a)
Crawler .....	(a)	(a)	3,617	(a)	(a)
Total .....	33,997	35,158	35,005	35,870	35,658
Miscellaneous machines—					
Hammer mills (including roughage mills) .....	(a)	1,921	(a)	(a)	2,524
Milking machine units .....	9,664	9,317	9,036	9,144	(a)
Shearing machine stands .....	23,431	24,799	25,355	26,385	(a)

(a) Not available.

(b) Includes headers but excludes clover seed harvesters.

## CLASSIFICATION OF RURAL HOLDINGS

Some of the information from the 1968-69 Agricultural and Pastoral Census was classified by size of principal characteristics (area of holdings, area of established pasture, area of selected crops and numbers of livestock). In addition all holdings were classified according to type of activity. Tables showing this information together with definitions and an outline of methods used have been published by the Commonwealth Bureau of Census and Statistics, Canberra in a series of bulletins, *Classification of Rural Holdings by Size and Type of Activity*, 1968-69.

Selected size classification tables for Western Australia are published elsewhere in this Part and the type of activity classifications for the State are shown below and on pages 335-6.

HOLDINGS CLASSIFIED ACCORDING TO TYPE OF ACTIVITY  
NUMBER AND AREA USED FOR VARIOUS PURPOSES—SEASON 1968-69

Type of activity	Number of holdings	Total area of holdings	Area used for—				
			Fruit	Crops (excluding fruit)	Fallow	Established pasture	Balance of holding
		acres	acres	acres	acres	acres	acres
Sheep—Cereal grain	6,355	23,846,051	43	5,922,681	824,957	8,424,369	8,674,001
Sheep	3,922	157,231,352	1,675	531,259	129,390	4,149,585	152,419,443
Cereal grain	2,030	8,705,190	22	2,787,781	642,902	671,490	4,602,995
Cattle (meat production)	1,480	76,155,013	655	31,874	15,367	808,251	75,298,866
Cattle (milk production)	1,292	628,826	388	10,758	2,303	409,257	206,120
Vineyards	151	11,626	4,147	280	455	2,085	4,659
Fruit (other than vine)	865	140,721	15,166	2,213	1,768	63,720	57,854
Vegetables—Potatoes	310	101,915	1,131	6,797	1,336	47,946	44,705
Other and mixed	699	22,907	772	5,880	1,278	4,311	10,666
Poultry	328	20,726	402	745	1,021	3,179	15,379
Pigs	201	108,336	107	7,102	5,180	15,156	80,794
Other	173	1,954,300	90	24,033	14,578	53,898	1,861,701
Multi-purpose	523	892,256	2,842	107,906	17,353	375,854	388,301
Total, classified holdings	18,329	269,819,219	27,440	9,439,309	1,657,888	15,029,101	243,665,484
Unclassified holdings—							
Sub-commercial	3,295	3,826,064	4,978	16,546	27,552	187,274	3,589,714
Unused, special, etc.	1,380	2,528,338	219	2,390	142,628	146,130	2,236,971
Total, all rural holdings	23,004	276,173,621	32,637	9,458,245	1,828,068	15,362,505	249,492,169

HOLDINGS WITH PIG HERDS, CLASSIFIED ACCORDING TO TYPE OF ACTIVITY  
AND SIZE OF HERD—SEASON 1968-69

Type of activity	Size of pig herd (numbers)									
	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-99	100 and over	Total
Sheep—Cereal grain	86	112	112	117	244	228	167	414	153	1,633
Sheep	48	54	51	38	68	66	42	93	36	496
Cereal grain	18	25	21	35	48	47	46	119	89	448
Cattle (meat production)	14	13	12	8	6	6	5	10	5	79
Cattle (milk production)	47	45	25	33	49	30	28	86	49	392
Vineyards	1	1	1	1	1	1	1	1	1	1
Fruit (other than vine)	15	2	2	2	5	1	1	5	1	33
Vegetables—Potatoes	11	1	2	1	1	1	1	1	1	16
Other and mixed	5	1	1	1	1	1	1	2	2	13
Poultry	1	1	1	1	3	1	1	4	5	17
Pigs	1	1	1	1	5	5	5	69	122	201
Other	1	1	1	1	1	1	1	1	1	2
Multi-purpose	13	6	9	7	22	19	16	62	73	227
Total, classified holdings	259	258	237	241	447	405	311	865	535	3,558
Unclassified holdings—										
Sub-commercial	58	38	31	19	34	20	9	4	1	213
Unused, special, etc.	1	1	1	1	1	1	1	1	1	1
Total, all rural holdings	317	296	268	260	481	425	320	869	535	3,771

In the first table on page 334, the number and area of rural holdings used for various purposes are shown. Of the 23,004 rural holdings of all types in the State, sheep and cereal grain was the principal activity of 6,355 or 28 per cent of the total. The greatest area was occupied by holdings with sheep as the principal activity, which accounted for 57 per cent of the total area of all holdings, followed by cattle for meat production with 28 per cent.

The second table on page 334 shows, for holdings with pig herds, the size of the herd for each type of activity. Pig raising was associated principally with the activity sheep and cereal grain.

Of the 9,236 holdings growing wheat for grain, 6,142 or over 66 per cent were combined with sheep as the principal activity, as shown in the following table. Cereal grain was the next most important activity associated with the growing of wheat for grain, accounting for 2,008 or over 65 per cent of the remaining 3,094 holdings.

HOLDINGS GROWING WHEAT FOR GRAIN, CLASSIFIED ACCORDING TO  
TYPE OF ACTIVITY AND AREA—SEASON 1968-69

Type of activity	Area of wheat for grain (acres)									Total
	1-99	100-199	200-299	300-399	400-499	500-699	700-999	1,000-1,999	2,000 and over	
Sheep—Cereal grain ....	242	459	515	594	598	1,110	1,130	1,199	295	6,142
Sheep ....	535	136	51	18	7	2	...	...	...	749
Cereal grain ....	10	67	111	121	131	214	319	649	386	2,008
Cattle (meat production) ....	9	3	2	...	1	...	1	1	...	17
Cattle (milk production) ....	...	...	...	...	...	...	...	...	...	...
Vineyards ....	...	...	...	...	...	...	...	...	...	...
Fruit (other than vine) ....	...	...	...	...	...	...	...	...	...	...
Vegetables—Potatoes ....	...	...	...	...	...	...	...	...	...	...
Other and mixed ....	...	...	...	...	...	...	...	...	...	...
Poultry ....	2	1	...	...	...	...	...	...	...	3
Pigs ....	18	5	1	...	...	...	...	1	...	25
Other ....	4	4	2	...	2	...	...	...	...	12
Multi-purpose ....	67	46	30	22	11	10	14	4	...	204
Total, classified holdings	887	721	712	755	750	1,336	1,464	1,854	681	9,160
Unclassified holdings—	...	...	...	...	...	...	...	...	...	...
Sub-commercial ....	69	7	...	...	...	...	...	...	...	76
Unused, special, etc. ....	...	...	...	...	...	...	...	...	...	...
Total, all rural holdings	956	728	712	755	750	1,336	1,464	1,854	681	9,236

In the following table, holdings with sheep flocks have been classified according to the size of flock for each type of activity.

HOLDINGS WITH SHEEP FLOCKS, CLASSIFIED ACCORDING TO TYPE OF ACTIVITY  
AND SIZE OF FLOCK—SEASON 1968-69

Type of activity	Size of sheep flock (numbers)									Total
	1-299	300-499	500-699	700-999	1,000-1,399	1,400-1,999	2,000-2,999	3,000-4,999	5,000 and over	
Sheep—Cereal grain ....	23	73	174	487	880	1,284	1,578	1,218	506	6,223
Sheep ....	9	97	188	279	404	517	711	858	739	3,802
Cereal grain ....	118	98	124	197	222	169	106	35	7	1,076
Cattle (meat production) ....	289	72	58	54	40	19	19	5	4	560
Cattle (milk production) ....	262	20	10	6	4	1	1	...	...	304
Vineyards ....	17	1	...	...	...	...	...	...	...	18
Fruit (other than vine) ....	95	25	21	16	7	7	1	...	...	172
Vegetables—Potatoes ....	38	8	1	7	4	4	...	...	...	62
Other and mixed ....	8	1	...	3	...	...	...	...	...	12
Poultry ....	28	...	...	3	1	...	...	...	...	32
Pigs ....	56	4	3	4	3	2	...	2	...	74
Other ....	8	3	8	2	6	1	5	2	...	35
Multi-purpose ....	61	43	56	56	60	67	74	31	11	459
Total, classified holdings	1,012	445	643	1,114	1,631	2,071	2,495	2,151	1,267	12,829
Unclassified holdings—	...	...	...	...	...	...	...	...	...	...
Sub-commercial ....	653	93	...	...	...	...	...	...	...	746
Unused, special, etc. ....	...	...	...	...	...	...	...	...	...	...
Total, all rural holdings	1,665	538	643	1,114	1,631	2,071	2,495	2,151	1,267	13,575

Holdings running cattle for milk production are classified in the following table according to size of herd for each type of activity.

Of the 2,299 rural holdings on which cattle for milk production were held, 594 or over 26 per cent ran herds of less than five cattle. Where cattle for milk production was the principal activity on the holding, there were more herds of between 100 and 149 cattle than any other size classification.

HOLDINGS WITH CATTLE (MILK PRODUCTION) HERDS (a)  
ACCORDING TO TYPE OF ACTIVITY AND SIZE OF HERD—SEASON 1968-69

Type of activity	Size of cattle herd (milk production) (numbers)									Total
	1-4	5-9	10-19	20-39	40-59	60-79	80-99	100-149	150 and over	
Sheep—Cereal grain ....	252	11	2	2	....	....	....	....	....	267
Sheep ....	107	2	7	6	4	4	3	....	....	133
Cereal grain ....	26	....	1	1	....	....	....	....	....	28
Cattle (meat production) ....	62	4	9	14	17	17	12	10	9	154
Cattle (milk production) ....	5	4	12	55	159	240	197	313	307	1,292
Vineyards ....	2	....	....	....	....	....	....	....	....	2
Fruit (other than vine) ....	13	1	5	14	10	2	....	....	1	46
Vegetables—Potatoes ....	3	1	4	14	10	12	7	4	....	55
Other and mixed ....	4	2	....	....	3	....	1	....	....	10
Poultry ....	5	1	1	....	1	....	....	....	....	8
Pigs ....	2	....	....	....	....	....	....	....	....	2
Other ....	1	....	1	....	....	....	....	....	....	2
Multi-purpose ....	23	4	4	12	23	20	10	12	3	111
Total, classified holdings	505	30	46	118	227	295	230	339	320	2,110
Unclassified holdings—										
Sub-commercial ....	89	12	22	53	13	....	....	....	....	189
Unused, special, etc. ....	....	....	....	....	....	....	....	....	....	....
Total, all rural holdings	594	42	68	171	240	295	230	339	320	2,299

(a) Excludes holdings with no cattle for milk production other than house cows.

Of the 8,902 holdings running cattle for meat production, 3,988 were associated with either sheep or sheep and cereal grain as the principal activity. A further 878 holdings were associated with the running of cattle for milk production. Herds of 1,000 or more cattle for meat production were found on 122 holdings.

HOLDINGS WITH CATTLE (MEAT PRODUCTION) HERDS  
ACCORDING TO TYPE OF ACTIVITY AND SIZE OF HERD—SEASON 1968-69

Type of activity	Size of cattle herd (meat production) (numbers)									Total
	1-9	10-19	20-29	30-49	50-99	100-199	200-299	300-999	1,000 and over	
Sheep—Cereal grain ....	792	291	170	249	289	132	21	21	2	1,967
Sheep ....	331	193	176	321	495	317	106	64	18	2,021
Cereal grain ....	130	29	18	22	22	16	3	1	....	241
Cattle (meat production) ....	....	....	1	38	398	472	206	267	98	1,480
Cattle (milk production) ....	239	129	95	119	195	63	23	15	....	878
Vineyards ....	13	6	1	2	5	....	....	....	....	27
Fruit (other than vine) ....	65	40	29	48	63	20	7	2	....	274
Vegetables—Potatoes ....	25	19	22	37	47	45	10	1	....	206
Other and mixed ....	15	8	8	8	7	2	....	....	....	48
Poultry ....	22	12	6	5	2	1	....	....	....	48
Pigs ....	26	10	4	9	9	1	....	....	....	59
Other ....	3	6	4	....	5	2	2	....	2	24
Multi-purpose ....	43	19	41	49	118	89	28	28	2	417
Total, classified holdings	1,704	762	575	907	1,655	1,160	406	399	122	7,690
Unclassified holdings—										
Sub-commercial ....	443	276	183	253	50	2	5	....	....	1,212
Unused, special, etc. ....	....	....	....	....	....	....	....	....	....	....
Total, all rural holdings	2,147	1,038	758	1,160	1,705	1,162	411	399	122	8,902

## VALUE OF PRODUCTION

For primary production the *gross value* is based on the wholesale price realised 'at the principal market'. Where primary products are consumed at the place of production or where they become raw material for secondary industry within the State, these points of consumption are taken as the 'principal market'. *Net value* represents the return to the producer after the cost of all goods consumed in the process of production and the costs of marketing the product have been deducted from the gross value. It is consequently the sum available for payment of wages, interest, rent, depreciation, other overhead costs and for the producer's own income.

Net values of production of the various primary industries excluding mining and quarrying during the five years ended 1970-71 are given in the following table. A useful comparison of the relative importance of the individual primary industries is provided by the five-yearly averages quoted, as they tend to lessen the effect on the statistics of unusual seasonal or other conditions occurring in particular years. However, in making such comparisons particular account should be taken of price fluctuations for major commodities in each industry over the period (such as wool in 'Pastoral') and, for 1969-70 and 1970-71 especially, of the implementation of the Wheat Delivery Quotas Plan.

NET VALUE OF RECORDED PRIMARY PRODUCTION  
(Excluding Mining and Quarrying)

Industry	1966-67	1967-68	1968-69	1969-70	1970-71	Average of five years
VALUE (\$'000)						
Agriculture ....	153,717	162,043	136,355	84,982	179,482	143,316
Pastoral ....	126,049	119,231	168,728	132,610	104,437	130,211
Dairying ....	11,060	11,820	12,909	(a) 9,850	10,004	11,129
Poultry farming ....	3,801	2,492	4,111	4,673	5,707	4,157
Bee keeping ....	442	219	503	614	277	411
Hunting ....	758	900	813	770	592	767
Forestry ....	12,473	13,273	12,591	12,795	14,845	13,195
Fishing, pearling and whaling ....	14,975	20,419	22,239	17,989	23,655	19,855
Total ....	323,275	330,396	358,248	264,283	339,000	323,040

## PROPORTION OF TOTAL (PER CENT)

Agriculture ....	47.55	49.05	38.06	32.16	52.94	44.35
Pastoral ....	38.99	36.09	47.10	50.18	30.81	40.31
Dairying ....	3.42	3.58	3.60	3.73	2.95	3.45
Poultry farming ....	1.18	0.75	1.15	1.77	1.68	1.29
Bee keeping ....	0.14	0.07	0.14	0.23	0.08	0.13
Hunting ....	0.23	0.27	0.23	0.29	0.17	0.24
Forestry ....	3.86	4.02	3.51	4.84	4.38	4.08
Fishing, pearling and whaling ....	4.63	6.18	6.21	6.81	6.98	6.15
Total ....	100.00	100.00	100.00	100.00	100.00	100.00

(a) Decrease due principally to change in sources and method of valuing fodder consumed.

The following table shows the gross and net values of production of the various primary industries in 1970-71. The '*local value*' which is quoted is the value at the source of production and is obtained by deducting marketing costs from the gross value. Marketing costs comprise freight, cost of containers, commission, and other charges incurred in marketing. Gross values provide a reliable measure of the value of production of any particular item or industry but net value of primary production should be used when comparing or combining values for primary industries with those for secondary industry.

**PRIMARY INDUSTRIES—VALUE OF PRODUCTION: 1970-71**  
(Excluding Mining and Quarrying)  
(\$'000)

Industry	GROSS VALUE (based on principal market prices)	Marketing costs	LOCAL VALUE (as at source of production)	Cost of goods consumed in process of production	NET VALUE
Agriculture ....	262,391	47,349	215,041	35,559	179,482
Pastoral ....	146,198	14,712	131,486	27,049	104,437
Dairying ....	26,861	1,522	25,339	15,335	10,004
Poultry farming ....	15,173	721	14,452	8,745	5,707
Bee keeping ....	296	18	277	(a)	277
Hunting ....	834	242	592	(a)	592
Forestry ....	16,174	1,329	14,845	(a)	14,845
Fishing, pearling and whaling ....	25,127	99	25,028	1,373	23,655
<b>Total ....</b>	<b>493,054</b>	<b>65,992</b>	<b>427,061</b>	<b>88,061</b>	<b>339,000</b>

(a) Not available.

Gross values of the principal items are shown in the next table for each of the years 1966-67 to 1970-71.

**PRIMARY PRODUCTION—GROSS VALUES OF PRINCIPAL ITEMS**  
(Excluding Mining and Quarrying)  
(\$'000)

Industry and commodity	1966-67	1967-68	1968-69	1969-70	1970-71
<b>Agriculture—</b>					
Wheat ....	153,157	170,102	151,306	93,988	158,033
Oats ....	15,800	14,106	12,978	5,910	18,100
Barley ....	7,476	7,690	8,619	8,874	34,194
Hay (all kinds) ....	8,985	9,557	10,132	13,457	15,396
Pasture seed—					
Subterranean clover ....	2,837	3,330	2,662	1,599	751
Barrel medic ....	690	282	341	65	111
Cotton ....	2,393	1,892	1,681	1,587	2,310
<b>Vegetables—</b>					
Potatoes ....	4,959	5,537	5,613	5,390	6,299
Tomatoes ....	1,950	1,546	1,885	2,024	1,915
Beans, runner ....	1,162	975	969	836	732
Lettuce ....	666	613	696	831	773
Cauliflowers ....	763	849	968	829	1,061
<b>Fruit, orchard—</b>					
Apples ....	6,695	6,637	8,289	8,072	9,167
Bananas ....	1,163	710	1,415	2,143	367
Oranges ....	1,227	1,359	1,200	1,344	1,272
Pears ....	593	721	821	849	823
Plums and prunes ....	491	563	531	662	702
Vine fruits ....	1,025	1,092	1,336	1,282	1,457
Nursery products (a) ....	894	910	1,138	1,312	1,467
<b>Pastoral—</b>					
Wool (shorn and dead) (b) ....	120,742	115,976	*157,788	120,552	91,937
Livestock slaughtered (c) ....	41,577	43,345	51,662	55,601	52,530
<b>Dairying—</b>					
Whole milk (d) ....	15,087	15,335	16,697	16,255	17,766
Livestock slaughtered (e) ....	6,755	8,767	8,368	9,687	9,041
<b>Poultry farming—</b>					
Eggs (f) ....	4,784	5,064	5,785	6,253	6,724
Poultry slaughtered ....	4,922	5,501	6,412	6,702	7,795
Bee keeping (g) ....	484	240	542	659	296
<b>Hunting ....</b>	<b>986</b>	<b>1,236</b>	<b>1,211</b>	<b>1,098</b>	<b>834</b>
<b>Forestry ....</b>	<b>13,300</b>	<b>14,076</b>	<b>13,465</b>	<b>13,632</b>	<b>16,174</b>
<b>Fishing—</b>					
Prawns ....	1,778	1,566	1,802	2,697	2,986
Rock lobsters ....	11,344	16,863	17,801	12,115	18,040
Scale fish ....	1,013	1,100	922	1,019	1,200
Pearls and pearl-shell (h) ....	292	359	334	371	413

(a) Value of seedlings, cut flowers, bulbs, trees, etc. produced. (b) The value of fleeced wool and wool exported on skins is included in the value of livestock slaughtered which has been computed from prices of livestock 'on hoof' and therefore includes a value for wool on skins. (c) Comprises cattle, sheep and lambs. (d) Includes Commonwealth Government subsidy. (e) Comprises calves and pigs. (f) Excludes value of non-commercial production. (g) Excludes value of production of bee keepers with less than five hives. (h) Excludes culture pearls. \* Revised.

## SUMMARY OF AUSTRALIAN STATISTICS

The following table contains a selection of the principal statistics of primary production in each of the Australian States for 1970-71. The figures shown for Australia include those for the Northern Territory and the Australian Capital Territory except where indicated otherwise.

## PRINCIPAL STATISTICS OF PRIMARY PRODUCTION—AUSTRALIA: 1970-71

Particulars	Unit	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Australia (a)
Rural holdings—								
Number .....	.....	75,365	68,555	43,399	29,087	22,592	9,926	249,495
Area .....	'000 acres	171,068	38,945	382,253	162,584	283,107	6,501	1,229,739
Principal crops—								
Wheat for grain—								
Area .....	'000 acres	5,475	1,879	825	1,983	5,835	11	(b) 16,009
Production .....	'000 bush	110,604	36,901	4,401	29,028	108,650	283	(b) 289,895
Oats for grain—								
Area .....	'000 acres	1,002	987	60	482	1,284	23	3,838
Production .....	'000 bush	25,133	25,720	464	8,408	28,657	486	88,882
Barley for grain—								
Area .....	'000 acres	744	665	226	1,714	1,562	32	4,942
Production .....	'000 bush	18,937	14,038	2,704	32,738	33,922	1,313	103,650
Hay—all types—								
Area .....	'000 acres	761	1,266	161	485	469	212	3,362
Production .....	'000 tons	1,355	2,455	376	743	662	441	6,044
Pasture seed .....	cwt	77,380	70,496	62,406	80,982	228,943	(c) 10,726	537,704
Cotton—								
Area .....	'000 acres	65	.....	(d) 13	.....	9	.....	87
Production .....	'000 lb	85,122	.....	(e) 19,191	.....	27,700	.....	132,013
Onions—								
Area .....	acre	2,047	2,593	3,218	2,229	301	316	(b) 10,710
Production .....	ton	17,338	16,907	25,418	24,054	4,462	3,261	(b) 91,483
Potatoes—								
Area .....	acre	22,102	34,965	15,925	7,160	6,246	8,994	(b) 95,404
Production .....	ton	143,387	272,200	108,659	71,380	68,058	71,444	(b) 735,173
Other vegetables—								
Area .....	acre	43,137	39,733	53,849	13,606	8,268	16,740	(f) 175,691
Apples—								
Number of trees .....	'000 trees	1,813	1,933	1,356	674	1,264	2,654	9,398
Production .....	'000 bush	4,016	5,079	2,025	1,583	3,156	7,373	23,238
Pears—								
Number of trees .....	'000 trees	286	1,770	123	206	84	181	2,649
Production .....	'000 bush	736	7,061	172	649	177	397	9,192
Oranges—								
Number of trees .....	'000 trees	2,708	636	262	1,513	370	.....	5,491
Production .....	'000 bush	6,321	1,785	840	5,377	480	.....	14,804
Vineyards—								
Area .....	acre	27,792	50,933	3,846	68,332	6,708	.....	157,611
Grapes (all purposes) .....	ton	103,845	200,024	4,402	221,092	11,337	.....	540,700
Wine made .....	'000 gal	10,376	6,616	32	37,233	999	.....	55,257
Livestock numbers, 31 March 1971—								
Sheep and lambs .....	'000	70,605	33,761	14,774	19,166	34,709	4,517	177,792
Cattle .....	'000	6,494	5,061	7,944	1,196	1,781	733	24,373
Pigs .....	'000	796	520	491	389	278	113	2,590
Livestock slaughtered for human consumption—								
Sheep .....	'000	6,932.6	8,553.8	2,117.0	2,541.2	2,931.5	713.2	23,805.4
Lambs .....	'000	8,015.8	7,879.9	788.7	2,559.4	1,484.8	680.7	21,591.6
Cattle .....	'000	1,343.9	1,381.5	1,324.5	222.8	340.3	140.1	4,840.2
Calves .....	'000	228.8	463.8	265.8	40.8	7.7	22.0	1,029.9
Pigs .....	'000	1,092.5	941.1	741.6	435.5	316.3	170.6	3,717.3
Wool production .....	tonne (g)	314,317	195,440	76,554	117,537	158,969	21,671	885,528
Whole milk production—								
All purposes .....	'000 gal	272,177	893,530	169,453	103,336	56,277	98,940	1,594,555
Fisheries production—								
Fish—live weight .....	'000 lb	35,467	31,990	11,361	17,839	12,339	4,276	113,697
Crustaceans—								
gross weight .....	'000 lb	5,299	1,720	19,567	7,794	24,147	3,552	72,002
Gold bullion .....	oz	84	5,640	37,191	.....	467,189	75	605,785
Iron ore .....	'000 tons	.....	.....	.....	7,284	45,684	(h) 2,012	56,208
Gross value of production—								
Agriculture .....	\$'000	426,311	270,130	364,269	166,351	262,391	40,148	1,530,793
Pastoral .....	'000	416,413	354,607	229,660	123,858	146,198	34,459	1,328,908
Dairying .....	'000	151,920	243,791	70,053	43,918	26,861	29,858	566,989
Poultry farming .....	'000	84,599	47,796	27,217	13,605	15,173	5,548	195,322
Bee keeping .....	'000	1,973	1,053	429	763	296	180	4,702
Hunting .....	'000	4,578	1,749	1,854	793	834	308	10,152
Forestry .....	'000	38,105	37,366	18,860	11,024	16,174	17,083	139,223
Fishing, pearling and whaling .....	'000	15,329	7,310	10,985	9,237	25,127	5,984	78,396

(a) Includes Northern Territory and Australian Capital Territory except where indicated; see footnote (b). (b) Incomplete. Excludes Northern Territory and/or Australian Capital Territory. (c) Includes production from area sown simultaneously with oats. (d) Sown 1969-70. (e) Harvested from crop sown in 1969-70. (f) Includes onions and potatoes for Northern Territory and Australian Capital Territory. (g) 1 tonne=1,000 kilograms. 1 kg=2.2 lb approx. (h) Iron concentrate.

## SEASONAL CALENDAR

The following calendar is intended to show the main periods when principal agricultural and pastoral activities are carried out in Western Australia. Operations are generally confined to the periods shown but are subject to variation according to such factors as geographical location within the State, the variety of seed sown (or trees and vines planted) and exceptional seasonal conditions.

## SEASONAL CALENDAR

Item	Period	
	Sowing or planting	Harvesting
Pastures—		
Clovers .....	April to June .....	December to April
Medics .....	April to June .....	December to April
Grain—		
Wheat .....	May to June .....	November to January
Oats .....	April to June .....	November to December
Barley .....	April to June .....	November to December
Rye .....	April to June .....	November to December
Hay—		
Wheaten .....	May to June .....	October to November
Oaten .....	May to August .....	October to November
Cotton .....	November to February .....	June to October
Linseed .....	May to June .....	December to January
Vegetables—		
Beans, Runner—		
Carnarvon area .....	March to September .....	May to November
Perth Division .....	August to March .....	November to June
Green Peas—		
For processing .....	May to September .....	October to December
Fresh .....	May to October .....	August to December
Potatoes—		
Early planting—		
Perth and South-West .....	June to July .....	October to November
Mid-season planting—		
Perth, South-West and Southern Agricultural .....	July to November .....	November to March
Late planting—		
South-West and Southern Agricultural .....	November to February .....	February to May
Onions .....	June to August .....	December to March
Tomatoes—		
Carnarvon and Geraldton areas .....	February to April .....	May to November
Other areas .....	June to December .....	October to May
Fruit—		
Apples .....	June to August .....	February to May
Apricots .....	July .....	December to January
Bananas .....	September .....	September to May
Lemons .....	July to August .....	July to June
Mandarins .....	July to August .....	May to September
Nectarines .....	July .....	January to February
Olives .....	July to August .....	March to April
Oranges, Navel .....	July to August .....	May to September
Oranges, Valencia .....	July to August .....	August to February
Peaches .....	July .....	December to February
Pears .....	June to July .....	January to March
Plums .....	June to July .....	December to March
Grapes—		
For table use .....	June to September .....	January to April
For wine making .....	June to September .....	February to April
For drying .....	June to September .....	February to March
Shearing and lambing—		
Shearing—		
Pastoral areas .....	March to August .....	
Agricultural areas .....	February to November .....	
Lambing—		
Pastoral areas .....	April to July .....	
Agricultural areas .....	April to September .....	

## BUSHEL WEIGHTS

The production of cereals, fruit and certain other commodities is generally recorded in bushels. While the weight of a bushel varies according to the nature of the product, it is also subject to considerable variation on account of such factors as method of packing and size and variety within each kind of product. The average bushel equivalent weights set out below may be used to convert production to pounds weight avoirdupois.

BUSHEL WEIGHTS

Product	Weight per bushel	Product	Weight per bushel	Product	Weight per bushel
Apples ....	42	Linseed ....	56	Peaches ....	45
Apricots ....	48	Loquats ....	45	Pears ....	45
Bananas ....	56	Maize ....	56	Peas, Field ....	60
Barley ....	50	Mandarins ....	48	Plums ....	58
Cherries ....	48	Nectarines ....	50	Quinces ....	42
Clover Seed ....	60	Oats ....	40	Rice ....	42
Figs ....	44	Olives ....	56	Rye ....	60
Grapefruit ....	42	Oranges ....	48	Tomatoes ....	44
Lemons ....	48	Passion Fruit ....	34	Wheat ....	60

AGRICULTURE

Wheat

Wheat has been grown from the earliest years of settlement and a brief synopsis of the development of production is given in the *Western Australian Year Book*, No. 7-1968 and earlier issues. By 1968, the area of land sown to wheat had increased to 7.3 million acres from which a record harvest of 112.4 million bushels was obtained for an average yield of 15.4 bushels per acre. In 1969 the area of land sown to wheat decreased to 5.8 million acres due to the introduction of the Wheat Delivery Quotas Plan in 1969 (see page 344). Although the area of wheat sown in 1970-71 was 1 million acres less than in the previous season, the total harvest of 108.6 million bushels was 42 million bushels greater, the increase being due to an above-average yield in 1970-71 following a very poor season in 1969-70.

Mechanisation has been of great importance in the growth of wheat farming in Western Australia owing to the relatively low yield per acre obtained.

Most of Western Australia's wheat production is exported as grain and flour and in the following table the fluctuations which have occurred in exports since 1910 are shown, together with figures giving the estimated total wheat equivalent. The United Kingdom has been the most consistent purchaser of the State's wheat, but since 1961-62 China (mainland) and Japan have been the most important customers and in 1969-70 their purchases together accounted for 78 per cent of the State's total wheat exports. However, in 1970-71 their combined purchases were only 29 per cent of the State's total exports and the United Kingdom was the most important customer with purchases amounting to 21.1 million bushels. In 1970-71 other principal buyers, in order of importance, were Iran and the United Arab Republic. In the same year principal customers for flour were the Trucial States, Indonesia, Saudi Arabia, Qatar and Ceylon. Further details of exports appear in Chapter IX, Part 1.

EXPORTS OF WHEAT AND FLOUR

Year	Wheat	Flour (a)	Estimated total wheat equivalent
	bushels	short tons (b)	bushels
1910 ....	2,014,552	2,821	2,147,139
1919-20 ....	9,151,125	129,250	15,225,875
1929-30 ....	24,953,238	69,070	28,199,528
1939-40 ....	15,330,423	91,667	19,633,772
1949-50 ....	21,510,390	115,814	26,953,648
1959-60 ....	36,713,316	87,851	40,842,313
1966-67 ....	84,980,233	38,365	86,783,388
1967-68 ....	87,199,586	46,207	89,371,315
1968-69 ....	55,900,870	38,691	57,719,347
1969-70 ....	66,681,502	34,362	68,296,516
1970-71 ....	98,138,407	29,399	99,520,160

(a) Ships' stores are excluded from figures for 1959-60 and subsequent years. (b) Short ton = 2,000 lb.

The next table gives details of areas sown and wheat produced since 1900.

WHEAT FOR GRAIN—AREA AND PRODUCTION

Season	Area sown	Production		
		Total	Average yield per acre	Gross value
1900-01	acres 74,308	bushels 774,653	bushels 10·4	\$ 309,862
1910-11	581,862	5,897,540	10·1	2,162,432
1920-21	1,275,675	12,248,080	9·6	11,023,272
1930-31	3,955,763	53,504,149	13·5	12,201,176
1940-41	2,625,401	21,060,000	8·0	8,647,906
1950-51	3,185,389	49,900,000	15·7	65,328,246
1960-61	4,021,225	63,900,000	15·9	92,290,238
1966-67	6,346,613	103,195,000	16·3	153,157,379
1967-68	6,647,095	106,975,000	16·1	170,101,782
1968-69	7,295,094	112,450,000	15·4	151,305,976
1969-70	6,788,177	66,700,000	9·8	93,987,639
1970-71	5,834,513	108,650,000	18·6	158,032,740

**Bulk Handling of Wheat.** The rapid increase in the production and export of wheat between 1910 and 1920 caused problems of transport and storage, and proposals for the bulk handling of the grain led to the formation of a company for this purpose in 1920. This original undertaking was wound up before commencing operations because the technical difficulties then appeared too great and the saving in handling costs problematical. In the early 1930s depressed wheat prices once again stimulated the search for cheaper methods of storage and transportation of grain. Experiments were carried out in the Wyalkatchem area during the 1931-32 season which essentially involved the adaptation of existing bagged wheat storages and bagged wheat mobile elevators to handle wheat in bulk.

The experiment proved successful and the Bulk Handling Act of 1935 gave a growers' co-operative the right of operating, under franchise, a bulk handling system. The co-operative company was Co-operative Bulk Handling Limited which had been formed in 1933, the initial capital being subscribed by two existing co-operatives, The Westralian Farmers and The Grain Pool. In founding Co-operative Bulk Handling Limited these two organisations had provided that as soon as the system was established and the initial liability repaid, ownership and control would be passed to the users of the system.

With its present toll system of operation Co-operative Bulk Handling Limited essentially conforms to the Rochdale principles of co-operation. The grower delivering grain to the Company pays a toll on each bushel delivered. For the first \$2 of toll, he receives one ordinary share in the company, which must be returned to the company if he ceases to deliver grain. For the remainder of his tolls he receives a debenture repayable in full over a ten-year cycle. The tolls are used for capital expenditure and for the repayment of previous tolls summarised into debentures. The toll system thus creates a revolving capital fund subscribed by the growers actually using the system, and in turn achieves perpetual and complete user-ownership. Each user of the system receives a share but only one share. He cannot accumulate any additional shares and thus has only one vote.

By 1943 the original construction programme had been completed and all debts repaid. At this time the decision was made to hand the system over to the growers to enable them to control and direct future expansions for their own benefit.

To the outbreak of the Second World War and beyond, the company continued its policy of expansion and modernisation. Services to off-line receival points were begun in the 1940-41 season and in 1951 growers of oats and barley requested that the co-operative include these grains in its system. Since then the company has stored and transported up to six grain types in many varieties and grades. Laboratory and sampling techniques have been extended, ensuring high quality control and a continued effort to meet marketing

requirements. In addition Co-operative Bulk Handling Limited provided and operates transfer depots for handling grain from narrow gauge to standard gauge railway wagons at Merredin, Midland and Northam. The depots are concrete vertical silo systems and between them handle all the grain destined for shipment through the Fremantle terminal which handles something more than half the total receivals.

In the 1960s, Co-operative Bulk Handling Limited commenced a modernisation programme of its country receival points. Original receival points were conceived in the era of horse-drawn transport and were spaced about seven miles apart. Motor transport and better roads meant that a twenty-mile spacing would be adequate, while the mechanisation of farming and the improvement of farming techniques indicated a large size of storage was required. The modernisation programme has involved the progressive replacement of the older bins, permanent roofed bulkheads and open bulkheads with horizontal storages built of either concrete or steel and equipped with integrated handling machinery, or provision for such machinery to be installed at a later date.

In addition to country receival points storage and transport, Co-operative Bulk Handling Limited provided and operates terminal depots for bulk wheat shipments at Albany, Bunbury, Esperance and Geraldton. The first stage of a modern deep-draught bulk loading terminal at Kwinana has been completed for the co-operative. This involved the construction of an initial horizontal storage unit of 10·5 million bushels capacity and wheat receivals commenced on 1 December 1969. On completion of its second stage, the Kwinana terminal will have a capacity of 31·8 million bushels and be capable of loading at a rate of 5,000 tons an hour.

At 30 September 1972, total permanent storage in the country was 131,067,000 bushels and at the ports 54,967,000 bushels. The initial storage constructed in 1931 provided for 640,000 bushels. The largest seasonal production that Co-operative Bulk Handling Limited has handled was 145,531,002 bushels of all grains in the 1970-71 season. By contrast, in the initial season the system handled 1,265,000 bushels.

**Marketing of Wheat.** The Australian Wheat Board is the sole authority for the marketing of wheat within Australia and of wheat and flour for export. It derives its authority from the provisions of the Wheat Stabilization Plan 1968-69 to 1972-73 established under joint Commonwealth and State legislation to replace similar legislation which expired after the marketing of the 1967-68 crop. The principal object of the Plan is to ensure that growers receive a satisfactory income from their wheat and this is achieved by a guaranteed return based on an export price as determined and applicable on up to 200 million bushels of wheat exported each season from Australia. This required the establishment of a fund by levying under authority of the *Wheat Export Charge Act* 1968 (Commonwealth), a tax on exports for which a price in excess of the guaranteed price is received. Should the price obtained fall below the guaranteed price it is provided that the difference shall be paid from the fund or, if that source is exhausted, by the Commonwealth Government. A further provision with a stabilising effect on the industry fixes the price at which wheat for home consumption may be sold.

By virtue of the *Wheat Industry Stabilization Act* 1968-1970 (Commonwealth) and of the *Bulk Handling Act*, 1967-1972, Co-operative Bulk Handling Limited acts as the licensed receiver for the Australian Wheat Board and handles all wheat produced for marketing in Western Australia.

Under the provisions of the *Wheat Tax Act* 1957-1966 (Commonwealth), a levy of 4c per bushel is made on wheat delivered to the Australian Wheat Board. This money, contributed by the growers, is spent by the Wheat Industry Research Council and State Wheat Research Committees set up under the provisions of the *Wheat Research Act* 1957. The Commonwealth Government has undertaken to supply additional funds, with a maximum of \$1 for every \$1 of growers' contributions.

**Wheat Standards.** The procedure approved by the Western Australian Wheat Standards Committee for determining the standard known as F.A.Q. (fair average quality) provides for samples being drawn progressively at each country receival point and port of shipment

during the harvest period. After all samples are assembled they are sorted into zones of origin (Geraldton, Fremantle, Bunbury, Albany and Esperance), the zones being fixed in relation to each siding's natural port terminal. Each zone is then taken separately, the samples from the sidings in the zone being bulked together and thoroughly mixed and it is from these mixtures that each zone's contribution to the main bulk sample for the State is drawn.

Zone contributions are then bulked together and thoroughly mixed, after which ten weighings are taken on a Schopper one-litre scale chondrometer and from the average of those weighings the F.A.Q. standard for the season is declared. Subsequently, the wheat is subjected to mechanical and quality tests.

Official standard samples are then widely distributed to commercial interests and appropriate Government Departments and instrumentalities both locally and overseas, as being representative of the wheat of the particular season which is on offer to the world grain markets.

**Wheat Delivery Quotas Plan.** The Australian Wheat Growers' Federation put forward proposals, in March 1969, for the allotment of quotas on deliveries of wheat to the Australian Wheat Board. The Federation's proposals, were mainly designed to bring marketable supplies of wheat more into line with available outlets, following the record Australian and State harvests in 1968-69. The proposals, which first became effective for the 1969-70 harvest, established for Western Australia a quota of 86 million bushels for deliveries of wheat for that season.

State Governments have the responsibility of implementing the quota plan within the States and separate enabling legislation has been enacted in each State. Particulars of the statutory provisions relating to the establishment in Western Australia of a quota scheme with respect to the delivery and marketing of wheat, are contained in the *Wheat Delivery Quotas Act, 1969*.

The States are responsible for determining the method of allocation of individual quotas within their respective boundaries. In Western Australia, the *Wheat Delivery Quotas Act, 1969* provides for the establishment of a Wheat Quotas Committee, consisting of three members appointed by the Minister for Agriculture. Subject to the direction of the Minister, the Committee is empowered under the Act to determine individual quotas for growers, but quotas may be reviewed by the Minister at any time.

The allocation in this State of individual quotas for 'established farms' for the season 1969-70 was made on the basis of the average for the farm of the best five deliveries made in the seven seasons from 1962-63 to 1968-69. Separate provisions applied to wheat growers on 'recently acquired farms' and 'new land farms'.

The allocation of quotas was not regarded as satisfactory by many in the industry and an independent Committee of Enquiry was formed to investigate the basis of allocation and to arrive at a more equitable distribution.

In an endeavour to alleviate various anomalies, a revised method of allocating the total State quota of 89 million bushels was adopted for the 1970-71 season.

Further modifications to the method of allocation were made for the 1971-72 season and again for 1972-73. The State's wheat quotas for these two years were 76 and 95 million bushels, respectively.

All wheat accepted as 'quota wheat' is the subject of normal Australian Wheat Board payments within the framework of the *Wheat Industry Stabilization Act 1968-1970*.

**Wheat Varieties.** Of 5,914,203 acres sown to wheat in 1970-71, whether for grain, hay or green fodder, 3,223,736 acres or 54.5 per cent were sown to Gamanya. The next most popular variety of wheat, in terms of acreage sown, was Falcon with 825,603 acres or 14.0 per cent of the total. Further details of the areas sown to individual varieties of wheat appear in previous issues of the Year Book or in the publication *Statistics of Western Australia—Rural Industries* issued by this Office.

In the next table, holdings growing wheat for grain in 1968-69, in size groups of the acreage sown, are classified according to the size of the holding. Of the 23,004 rural holdings of all types in the State, wheat for grain was grown on 9,236. Holdings of between 1,000 and 5,000 acres accounted for 76 per cent of this number and holdings which sowed between 200 and 1,000 acres represented 54 per cent.

Of the 9,236 holdings growing wheat for grain all but 1,114 carried sheep and 74 per cent had flocks of between 1,000 and 5,000 sheep.

**HOLDINGS GROWING WHEAT FOR GRAIN, CLASSIFIED ACCORDING TO ACREAGE SOWN AND SIZE OF HOLDING—SEASON 1968-69**

Size of holding (acres)	Area of wheat for grain (acres)										Total, all rural holdings
	1-99	100-199	200-299	300-399	400-499	500-699	700-999	1,000- 1,999	2,000 and over	Total	
1- 49 .....	7	....	....	....	....	....	....	....	....	7	3,754
50- 99 .....	15	....	....	....	....	....	....	....	....	15	656
100- 149 .....	17	3	....	....	....	....	....	....	....	20	655
150- 199 .....	12	1	....	....	....	....	....	....	....	13	559
200- 299 .....	18	2	1	....	....	....	....	....	....	21	985
300- 399 .....	13	5	....	....	....	....	....	....	....	18	811
400- 499 .....	17	10	3	2	1	....	....	....	....	33	665
500- 599 .....	20	11	5	1	1	....	....	....	....	39	550
600- 699 .....	30	14	5	6	....	....	....	....	....	55	498
700- 799 .....	23	18	12	3	....	1	....	....	....	57	387
800- 899 .....	26	24	18	8	3	2	1	....	....	82	372
900- 999 .....	27	36	25	25	15	7	1	....	....	136	399
1,000-1,999 .....	146	109	111	111	63	52	16	3	....	611	1,446
1,400-1,999 .....	179	138	129	185	173	250	131	26	....	1,211	1,960
2,000-2,999 .....	209	197	187	208	243	514	493	231	6	2,288	3,166
3,000-3,999 .....	103	90	132	105	144	275	392	474	24	1,739	2,277
4,000-4,999 .....	51	37	48	53	63	130	239	497	79	1,197	1,464
5,000-9,999 .....	37	29	31	43	39	95	173	558	394	1,399	1,555
10,000 and over .....	6	4	5	5	5	9	18	65	178	295	845
Total .....	956	728	712	755	750	1,336	1,464	1,854	681	9,236	23,004

In the following table, details of area sown and wheat produced in each of the Australian States and the Australian Capital Territory are shown for the period 1966-67 to 1970-71.

**WHEAT FOR GRAIN—AREA AND PRODUCTION: AUSTRALIAN STATES**

Season	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Australian Capital Territory	Australia
AREA SOWN TO WHEAT FOR GRAIN ('000 ACRES)								
1966-67 .....	7,135	3,138	1,227	2,960	6,347	13	3	20,823
1967-68 .....	8,215	3,224	1,477	2,864	6,647	12	2	22,441
1968-69 .....	9,962	3,984	1,789	3,748	7,295	17	4	26,799
1969-70 .....	8,623	3,298	1,504	3,210	6,788	15	3	23,440
1970-71 .....	5,475	1,879	825	1,983	5,835	11	1	16,009
PRODUCTION OF WHEAT ('000 BUSHEL)								
1966-67 .....	202,501	70,896	35,730	53,816	103,195	385	87	466,610
1967-68 .....	87,323	28,317	27,417	26,899	106,975	316	42	277,289
1968-69 .....	215,119	90,728	42,000	83,160	112,450	410	84	543,950
1969-70 .....	162,786	83,544	14,898	59,159	66,700	353	73	387,512
1970-71 .....	110,604	36,901	4,401	29,028	108,650	283	28	289,895
YIELD PER ACRE (BUSHEL)								
1966-67 .....	28.4	22.6	29.1	18.2	16.3	30.2	32.5	22.4
1967-68 .....	10.6	8.8	18.6	9.4	16.1	26.3	17.8	12.4
1968-69 .....	21.6	22.8	23.5	22.2	15.4	23.6	20.1	20.3
1969-70 .....	18.9	25.3	9.9	18.4	9.8	23.9	27.0	16.5
1970-71 .....	20.2	19.6	5.3	14.6	18.6	25.5	28.7	18.1

## Oats

Although oats have been grown in Western Australia since the early development of wheat farming, cultivation was somewhat limited until stimulated by the introduction of large-scale sheep raising in the agricultural areas, when their high nutritional worth as stock feed made them a very valuable crop. The area sown to oats for grain increased from 193,486 acres in 1920 to 274,874 in 1930, to 429,177 in 1940, to 585,701 in 1950 and 1,329,804 in 1960. It has since remained reasonably static and, in 1970, 1,283,855 acres were sown to oats.

In addition to their importance as local stock feed, oats are exported in substantial quantities in normal seasons. In 1970-71 the total sold overseas was 12,886,945 bushels, the principal buyers being the Federal Republic of Germany, Italy, Netherlands and Japan. Exports to other Australian States are negligible.

Although growers are free to market oats in any way they wish, in practice a large proportion of all sales, whether for export or the local market, is effected through the Western Australian State Voluntary Oats Pool, which is conducted by the Grain Pool of W.A. under the control of the Minister for Agriculture. Co-operative Bulk Handling Limited as the Pool's licensed receiver, handles all oats marketed through the Pool.

### OATS FOR GRAIN—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	bushels	bushels	\$
1966-67	1,203,815	22,117,198	18·4	15,799,834
1967-68	1,158,114	19,759,430	17·1	14,106,123
1968-69	1,092,469	22,941,897	21·0	12,977,507
1969-70	1,139,430	15,463,313	13·6	5,909,782
1970-71	1,283,855	28,656,690	22·3	18,100,046

## Barley

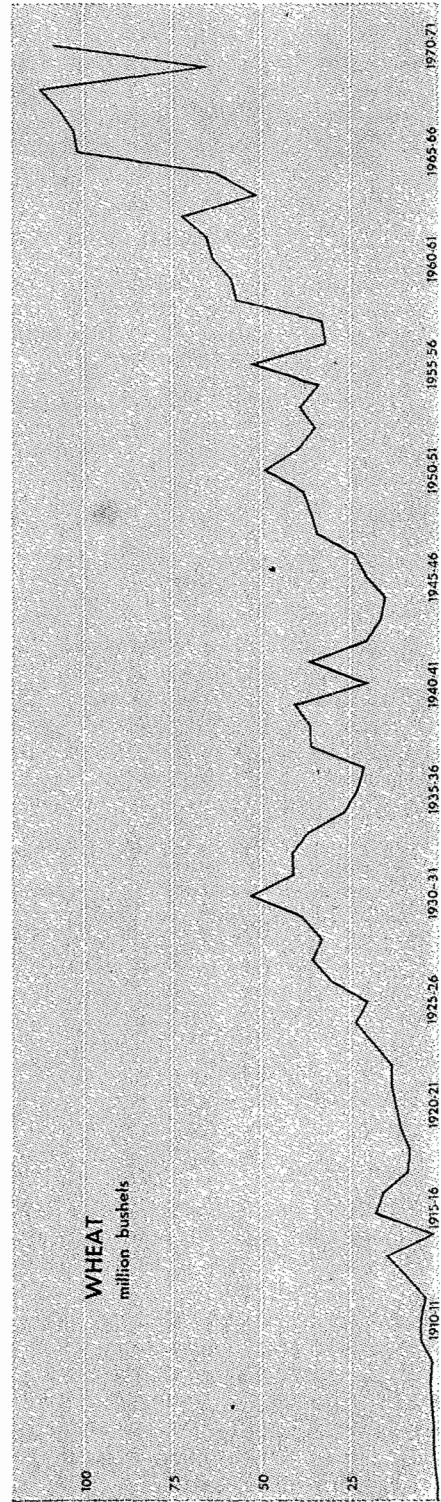
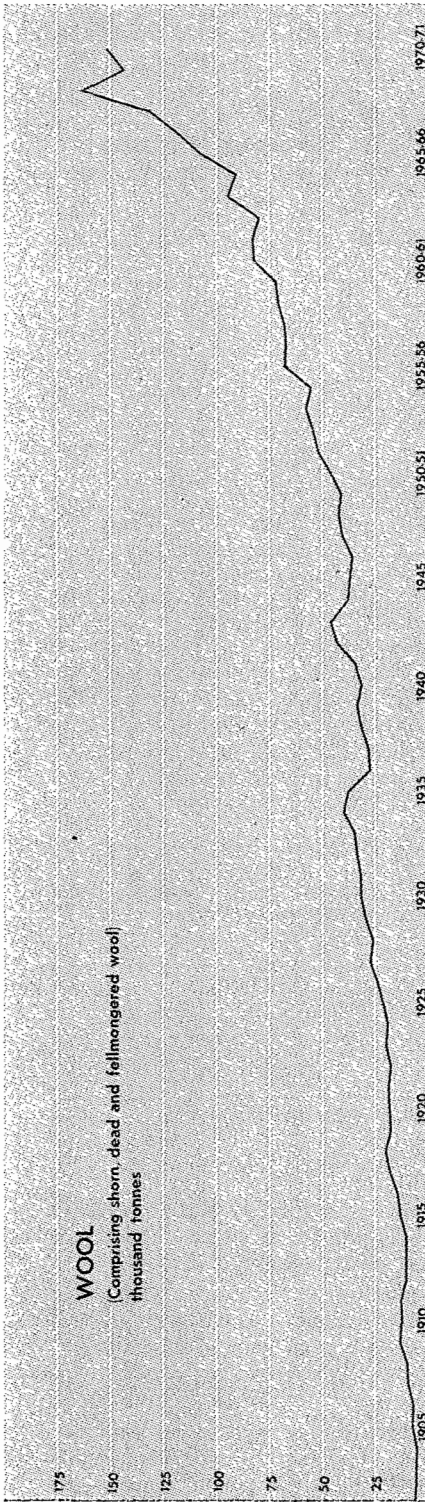
Barley grows well on the lighter soils of the wheat belt and is also successful as a first crop on newly-developed land. With the introduction of wheat delivery quotas and because barley was a suitable alternative crop, the area of barley sown for grain in 1970-71 increased to 1,561,934 acres from 552,810 acres in 1968-69.

### BARLEY FOR GRAIN—AREA AND PRODUCTION

Season	Two-row				Six-row			
	Area	Production			Area	Production		
		Total	Average yield per acre	Gross value		Total	Average yield per acre	Gross value
	acres	bushels	bushels	\$	acres	bushels	bushels	\$
1966-67	72,190	1,450,153	20·1	1,927,087	300,909	5,257,331	17·5	5,548,775
1967-68	100,500	1,752,735	17·4	2,293,542	315,285	5,274,174	16·7	5,396,282
1968-69	198,260	3,712,281	18·7	3,956,665	354,550	5,474,833	15·4	4,661,940
1969-70	407,707	6,862,520	16·8	5,535,888	492,480	5,195,535	10·5	3,338,133
1970-71	780,504	18,347,738	23·5	20,681,812	781,430	15,573,961	19·9	13,511,703

Both 'two-row' and 'six-row' barley are grown and, while a large amount of the grain produced is retained on farms for stock feed, the bulk of the crop is now exported. In 1970-71 the quantity exported overseas was 20,586,048 bushels, the principal buyers being the United Kingdom and the Federal Republic of Germany. For many years sales of 'two-row' barley were mainly to local maltsters. However, since 1968-69 exports of 'two-row' barley have become increasingly important. Most 'six-row' barley sold continues to be marketed overseas.

# Wool and Wheat - Annual Production, 1901 to 1970-71



The marketing of barley, both for export and for local consumption, is controlled by the Western Australian Barley Marketing Board, Co-operative Bulk Handling Limited acting as the Board's licensed receiver.

### Other Grains and Pulse

Rye and field peas are the only other grain or pulse crops which are cultivated to any appreciable extent. Maize and sorghum are grown but only in small quantities.

#### RYE AND FIELD PEAS FOR GRAIN—AREA AND PRODUCTION

Season	Rye				Field peas			
	Area	Production			Area	Production		
		Total	Average yield per acre	Gross value		Total	Average yield per acre	Gross value
	acres	bushels	bushels	\$	acres	bushels	bushels	\$
1966-67 ....	10,682	99,471	9.3	110,861	4,551	39,435	8.7	107,656
1967-68 ....	10,944	91,188	8.3	95,622	4,699	44,662	9.5	138,899
1968-69 ....	8,986	58,804	6.5	69,741	7,691	60,412	7.8	117,803
1969-70 ....	11,003	50,368	4.6	56,969	6,022	22,162	3.7	39,892
1970-71 ....	20,043	173,990	8.7	166,198	5,299	44,231	8.3	111,904

### Hay

Large quantities of meadow hay are cut from clover and grass pastures, production in 1970-71 being 261,807 tons from 179,879 acres. The principal cereal hay crop is oats and 290,072 tons of oaten hay were cut in 1970-71 from 203,608 acres. Wheat is the only other cereal crop which is used extensively for this purpose and in 1970-71 the production was 83,262 tons from 64,873 acres. Barley, vetches, lucerne, field peas, rye, and rape are also used for hay making but they are of minor importance only.

#### HAY—AREA AND PRODUCTION

Season	Meadow		Oaten		Wheaten		Other (a)		Total	
	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production
	acres	tons	acres	tons	acres	tons	acres	tons	acres	tons
1966-67 ....	139,842	208,893	111,045	151,287	35,247	43,791	8,948	13,392	295,082	417,363
1967-68 ....	155,355	209,646	118,478	153,870	34,717	43,886	9,373	13,751	317,923	421,153
1968-69 ....	189,859	285,938	106,133	154,691	34,290	42,522	10,894	16,591	341,176	499,742
1969-70 ....	141,963	166,155	219,117	224,079	118,226	95,212	20,910	22,653	500,216	508,099
1970-71 ....	179,879	261,807	203,608	290,072	64,873	83,262	20,605	27,070	468,965	662,211

(a) Mainly barley, vetch, lucerne, field pea, rye and rape hay.

### Pastures

The first established pastures in the State were cultivated to provide grazing for dairy cattle but, with the rapid increase in the number of sheep carried on wheat farms, by far the greater area is now located in the wheat-growing districts.

Subterranean clover was one of the first pasture species sown in these districts and it is still the most important, although other clovers, medics and a variety of grasses including Wimmera rye grass and perennial rye grasses are also grown extensively. The present practice in the higher-rainfall areas is to sow a mixture of two or more species, selected for their suitability to the type of soil and rainfall, to give a legume grass pasture.

From 1.9 million acres in 1945-46, the area under established pasture has increased remarkably to 17.2 million acres in 1970-71. The top-dressing of pastures with super-phosphate has developed to such an extent that this treatment is now general practice.

Western Australia is in a particularly good position to produce seed of annual legumes and grasses on a large scale and in 1970-71 produced approximately two-fifths of the total Australian crop.

In recent years considerable areas of new land have been cleared, much of it along the south coast where the growing season is six or seven months. It has been found that if heavier seed and fertiliser applications are used, good subterranean clover seed crops can be grown in the first year on this new land. Similarly, in more inland districts good yields of barrel medic can be obtained on suitable soil types. The paddocks generally being used are large, open and only gently undulating, and are thus suitable for the operation of modern harvesting machines. Very little, if any, rain falls in the summer months and this ensures ideal harvesting conditions.

The development of suction harvesting machines in recent years has enabled this potential to be exploited. Suction harvesters are now used to harvest most of the more important small-seeded legume crops (subterranean clover, barrel medic and rose clover).

Seed certification schemes are operated by the Department of Agriculture for the main species of pasture seed. These schemes ensure that buyers are in a position to obtain good quality seed of the strain they require free from weed seeds. Certification schemes have assisted greatly in marketing and in allowing the development of a sound export trade.

Production of all kinds of pasture seed excluding lupins in 1970-71 was 9.4 million lb. There is an important export trade in subterranean clover seed and in 1970-71 the total exported was 3,075,013 lb, over three quarters of which went to other Australian States.

#### PASTURE SEED HARVESTED

Season	Principal pasture seed								Total pasture seed (all kinds, excluding lupins)	
	Subterranean clover		Rose clover		Barrel medic		Wimmera rye grass			
	Area harvested	Pro- duction	Area harvested	Pro- duction	Area harvested	Pro- duction	Area harvested	Pro- duction	Area harvested	Pro- duction
1966-67	acres	centals (a)	acres	centals (a)	acres	centals (a)	acres	centals (a)	acres	centals (a)
1966-67	87,001	196,611	6,343	9,745	16,489	24,245	1,798	2,927	116,330	241,138
1967-68	71,667	159,541	6,464	9,594	9,937	12,255	1,674	1,730	94,982	194,352
1968-69	98,077	212,309	5,137	7,852	10,391	14,832	1,803	2,050	120,348	246,556
1969-70	63,418	114,188	2,430	2,873	5,031	4,516	777	1,560	74,513	127,804
1970-71	35,778	75,083	2,301	3,769	5,893	6,518	2,607	3,969	48,494	94,373

(a) Cental = 100 lb.

#### Green Feed

Large areas of oats are grown for use as green feed for stock. Among other crops which are cultivated for this purpose, but to a far lesser extent, are barley, wheat, lucerne, field peas and sudax. The total area of crops used for green feed was 367,659 acres in 1970-71.

#### GREEN FEED—AREA GRAZED OR CUT (Acres)

Season	Oats	Barley	Wheat	Lucerne	Field peas	Sudax	All other kinds (a)	Total
1966-67	332,090	22,073	10,590	6,396	8,723	1,768	17,211	398,851
1967-68	344,661	24,217	9,727	5,394	10,897	4,118	15,539	414,553
1968-69	233,530	21,310	8,113	4,623	10,685	4,622	14,357	297,240
1969-70	279,840	33,495	18,902	7,115	8,458	15,069	20,438	383,317
1970-71	265,899	43,754	14,817	11,522	7,784	7,248	16,635	367,659

(a) Mainly vetches, millet, sudan grass and sorghum.

#### Linseed

During the war, attempts were made to cultivate those varieties of flax which yield linseed as the principal product, but they were largely unsuccessful and were abandoned.

Efforts were renewed in 1947-48 but once again were short-lived, being discontinued after five years. Production recommenced in 1957-58 when 1,350 cwt were harvested from 549 acres. Since then area and production have fluctuated widely, the lowest figures being recorded in 1965-66 when an area of 97 acres was cropped for a harvest of 303 cwt. As a result of a renewed interest in linseed as a cash crop for the Esperance area, the acreage sown then increased substantially in each of the four succeeding years to a record 30,812 acres in 1969-70. In 1970-71, however, the acreage sown decreased to 25,751 acres.

## LINSEED—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	cwt	cwt	\$
1966-67	1,751	12,680	7.2	44,380
1967-68	6,886	41,666	6.1	199,452
1968-69	18,645	106,419	5.7	514,639
1969-70	30,812	123,714	4.0	567,767
1970-71	25,751	96,798	3.8	397,073

## Cotton

The first commercial crop of cotton was grown at Kununurra in 1962-63 on land irrigated from the Ord River diversion dam at Bandicoot Bar. In 1970-71 a total area of 8,505 acres produced 247,321 cwt of seed cotton, the average yield per acre being 3,257 lb. A cotton ginnery to process the seed cotton was installed at Kununurra in 1963 and a second ginnery commenced operations in May 1967.

Under the *Raw Cotton Bounty Act* 1963-1969, the Commonwealth Government paid a bounty on raw cotton of grade higher than 'strict good ordinary' and with a staple length of not less than seven-eighths of an inch which was produced in Australia. Bounty was paid at the rate of 13.4375 cents per lb on cotton of 'middling white' grade with a staple length of one inch. Provision was made for premiums and discounts on grades and staples above and below these standards. For the year commenced 1 March 1971 the amount available for payment of bounty was \$2 million. For the previous year it was \$3 million. Prior to 1 March 1970 the amount available in any year from 1 January 1964 was \$4 million. Bounty was payable under the Act up to and including the year which commenced on 1 March 1971 but, as no statutory provisions have been made for extension of the cotton bounty beyond that period, payments have now ceased.

## COTTON—AREA AND PRODUCTION

Season	Area	Production of seed cotton		
		Total	Average yield per acre	Gross value
	acres	cwt	lb	\$
1966-67	11,892	262,500	2,472	2,393,000
1967-68	11,782	231,732	2,203	1,892,000
1968-69	8,327	192,500	2,589	1,680,700
1969-70	7,210	185,714	2,885	1,386,887
1970-71	8,505	247,321	3,257	2,309,958

## Potatoes

The cultivation of potatoes, the State's principal vegetable crop, is largely confined to the higher-rainfall areas of the South-West. Winter crops are planted during June and early July on the frost-free hillsides and drained flats of the coastal areas between Waroona and Donnybrook and on the market garden land in the Perth Statistical Division. Mid-season plantings are made from the middle of July to November on summer-moist areas or on sprinkler-irrigated land in the Shires of Manjimup, Busselton, Albany and Waroona and in market gardens in the Perth Statistical Division. Late crops are planted between mid-November and the end of February in all districts growing early and mid-season crops, other than the Perth Statistical Division.

The average yield of potatoes per acre in Western Australia is consistently very much greater than that for Australia as a whole, and in 1970-71 comparative yields were 10·9 tons and 7·7 tons per acre. This is due mainly to the favourable climatic conditions in Western Australia and the increasing use of sprinkler irrigation. Delaware, the principal variety grown in the State, gives high yields under a wide range of growing conditions. There is a substantial export surplus, the bulk of which usually goes to the other Australian States with smaller consignments being sent overseas, principally to Singapore.

Potato production in Western Australia is controlled, under the provisions of the *Marketing of Potatoes Act, 1946-1966*, by the Western Australian Potato Marketing Board, which is the sole marketing authority for potatoes produced in the State. The object of this provision is to ensure adequate supplies for local consumption and effective marketing of crops.

#### POTATOES—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	tons	tons	\$
1966-67 ....	6,100	64,169	10·5	4,958,829
1967-68 ....	6,149	70,469	11·5	5,537,310
1968-69 ....	6,588	74,435	11·3	5,613,344
1969-70 ....	6,332	67,164	10·6	5,390,001
1970-71 ....	6,246	68,058	10·9	6,299,365

#### Onions

The production of onions is largely confined to the metropolitan and adjacent areas, Spearwood being the main centre. In these districts onions are usually grown on light sandy soils and yields of up to 20 tons per acre are obtained. An increase in area occurred during each season from 1958-59 to 1962-63 when 509 acres were planted. The area planted then declined steadily over the next three years, with a slight recovery occurring in 1966-67. In 1970-71 301 acres were planted for a production of 4,462 tons or 14·8 tons per acre.

Onions are imported annually into Western Australia during the winter but a surplus is produced locally during summer months which is exported, in the main, to overseas markets, the most important being Singapore.

#### ONIONS—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	tons	tons	\$
1966-67 ....	413	5,417	13·1	419,440
1967-68 ....	340	4,633	13·6	540,941
1968-69 ....	359	5,494	15·3	541,478
1969-70 ....	302	4,428	14·7	487,056
1970-71 ....	301	4,462	14·8	558,424

#### Tomatoes

The main centres of production of tomatoes are at Carnarvon and Geraldton and in the districts around Perth. At Carnarvon and Geraldton, because of the warm winter climate, growers are able to produce early crops and take advantage of the high prices ruling on the Melbourne market during the winter and spring. They also supply substantial quantities to the Perth market and there is a consistent export trade with Christmas Island (Indian Ocean) and Singapore.

Supplies to the Perth market from December to June are grown in and near the metropolitan area, principally in the Wanneroo and Osborne Park districts. Tomatoes are also grown in a number of districts in the South-West and Southern Agricultural Divisions.

The total area under tomatoes reached a peak of 1,555 acres in 1944-45 but the average yield per acre in that year was low and total production was only 755,898 half-bushel cases. Since then, although the area has declined, yields per acre have improved and production in 1970-71 was 785,254 half-bushel cases from 599 acres, an average yield of 1,311 half-bushel cases per acre.

## TOMATOES—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	'000 half-bushel cases	half-bushel cases	\$
1966-67	691	753	1,090	1,949,857
1967-68	680	763	1,123	1,545,745
1968-69	612	717	1,171	1,885,198
1969-70	575	732	1,273	2,023,791
1970-71	599	785	1,311	1,915,388

## Other Vegetables

In addition to the cultivation of potatoes, onions and tomatoes, previously mentioned, many other vegetables are produced, the bulk of them in or near the metropolitan area where growers benefit not only from proximity to the principal market but also from an abundant supply of water at relatively shallow depths. Small quantities are also produced in many country districts. An important early crop of beans is grown at Carnarvon and transported by road to Perth. Approximately half of this crop is then railed or airfreighted to Adelaide.

Details of the area and production of the principal vegetables other than potatoes, onions and tomatoes for the years 1966-67 to 1970-71 are given in the next three tables.

## TURNIPS, CARROTS, PARSNIPS, BEETROOT—AREA AND PRODUCTION

Season	Turnips (swede and white)			Carrots			Parsnips			Beetroot		
	Area	Production		Area	Production		Area	Production		Area	Production	
		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value
	acres	'000 lb	\$	acres	tons	\$	acres	'000 lb	\$	acres	'000 lb	\$
1966-67	122	1,942	69,671	429	5,657	565,145	107	2,235	227,909	97	1,659	90,964
1967-68	127	1,815	106,228	415	5,550	362,986	105	2,090	140,144	82	1,443	57,716
1968-69	127	1,337	54,539	396	8,809	692,387	86	1,452	102,674	58	935	49,914
1969-70	96	796	42,290	382	5,684	439,942	86	1,140	107,216	51	670	38,676
1970-71	115	979	58,377	443	6,535	748,911	95	1,280	127,908	47	615	34,239

## PUMPKINS, BEANS, GREEN PEAS—AREA AND PRODUCTION

Season	Pumpkins			Beans						Green peas		
	Area	Production		Area	Production		Area	Production		Area	Production	
		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value
	acres	'000 bags	\$	acres	'000 lb	\$	acres	'000 lb	\$	acres	'000 lb	\$
1966-67	867	77	277,424	1,028	8,949	1,161,713	42	186	22,324	3,236	11,152	418,817
1967-68	934	93	328,229	943	8,128	975,314	121	584	40,886	2,854	11,220	261,935
1968-69	856	90	357,416	817	6,923	969,219	151	666	64,129	2,274	11,801	232,960
1969-70	924	88	249,616	795	5,572	835,866	74	356	23,042	1,924	9,275	158,494
1970-71	1,027	105	410,208	695	5,229	732,090	220	1,317	69,239	1,922	15,448	222,333

## CABBAGES, CAULIFLOWERS, LETTUCE—AREA AND PRODUCTION

Season	Cabbages			Cauliflowers			Lettuce		
	Area	Production		Area	Production		Area	Production	
		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value
	acres	'000 crates	\$	acres	'000	\$	acres	'000 crates	\$
1966-67	356	218	254,048	679	3,605	763,229	417	354	666,402
1967-68	392	258	451,449	640	3,356	848,906	431	351	613,289
1968-69	347	246	243,700	680	3,392	967,905	399	348	696,460
1969-70	306	225	323,955	719	3,299	829,059	417	368	831,356
1970-71	344	262	387,140	780	3,851	1,060,693	458	367	773,042

## Orchards

Fruit production is largely confined to the temperate regions between Gingin to the north of Perth and Albany on the south coast. The cool, wet winters and warm, dry summers of this area permit the successful cultivation of a wide variety of fruits. In the southern and south-western sections, apples, pears and stone fruits are grown extensively while in the districts around Perth the principal crops are apples, stone fruits, citrus fruits and grapes. Outside this main fruit-growing area, banana plantations have been established at Carnarvon in the North-West.

The following table shows details of production of the principal groups of orchard fruit during the years 1966-67 to 1970-71.

## FRUIT (a)—AREA AND GROSS VALUE OF PRODUCTION

Season	Area (b)			Gross Value of production				
	Orchard fruit	Plantation and berry fruit	Total	Pome (c)	Citrus (d)	Stone (e)	Other (f)	Total
	acres	acres	acres	\$	\$	\$	\$	\$
1966-67	25,819	638	26,457	7,288,924	1,618,232	1,048,423	1,260,718	11,216,297
1967-68	24,967	632	25,599	7,251,995	1,843,954	1,181,588	824,100	11,101,637
1968-69	24,705	661	25,366	9,013,608	1,733,777	1,212,404	1,543,256	13,503,045
1969-70	23,470	660	24,130	8,923,348	1,873,982	1,315,040	2,318,216	14,430,586
1970-71	23,238	553	23,791	9,992,014	1,837,447	1,454,684	604,952	13,889,097

(a) Excludes grapes. (b) Comprises bearing and non-bearing trees and plants. (c) Apples, pears and quinces.  
 (d) Principally oranges, mandarins, lemons and grapefruit. (e) Apricots, peaches, nectarines, plums and cherries. (f)  
 Bananas, loquats, figs, passion fruit, almonds and other minor fruits.

## Apples

Apples, which are the principal fruit crop, account for more than half the total orchard area. Manjimup, Donnybrook, Bridgetown and Mount Barker (based on number of bearing and non-bearing trees) are the most important centres but other districts in the South-West and in the Darling Range near Perth produce large quantities. In 1970-71 the total number of bearing trees was 1,035,728 which produced 3,115,624 bushels, the principal varieties being Granny Smith, Yates, Jonathan, Cleopatra and Delicious.

## APPLES—NUMBER OF TREES AND PRODUCTION

Season	Number of trees		Production		
	Bearing	Non-bearing	Total	Average yield per bearing tree	Gross value
			bushels	bushels	\$
1966-67	1,035,463	362,317	2,386,741	2.3	6,694,783
1967-68	1,013,752	342,702	2,060,158	2.0	6,636,970
1968-69	1,026,533	329,589	2,870,187	2.8	8,289,047
1969-70	1,002,497	257,371	2,610,151	2.6	8,071,987
1970-71	1,035,728	228,566	3,155,624	3.0	9,167,390

There is a valuable export trade and overseas shipments generally exceed well over 1 million bushels annually, with 1.8 million bushels being exported in 1970-71. The United Kingdom is the most important market, followed by Singapore, the Federal Republic of Germany, the Netherlands and the United States of America.

### Pears

Pears are usually grown in conjunction with apples but the number of trees planted and the quantity produced are much less, the total number of bearing trees in 1970-71 being 69,135 and the production 177,488 bushels. The bulk of the crop is consumed locally but significant quantities are exported, principally to Singapore and Malaysia.

PEARS—NUMBER OF TREES AND PRODUCTION

Season	Number of trees		Production		
	Bearing	Non-bearing	Total	Average yield per bearing tree	Gross value
			bushels	bushels	\$
1966-67 ....	72,490	23,948	153,872	2.1	592,807
1967-68 ....	66,877	24,718	181,772	2.7	611,486
1968-69 ....	68,004	19,479	191,351	2.8	721,475
1969-70 ....	71,289	13,998	212,235	3.0	849,312
1970-71 ....	69,135	14,414	177,488	2.6	823,390

### Citrus Fruit

The following tables give details of production of citrus fruit by type for the years 1966-67 to 1970-71.

ORANGES AND MANDARINS—NUMBER OF TREES AND PRODUCTION

Season	Oranges				Mandarins			
	Number of trees		Production		Number of trees		Production	
	Bearing	Non-bearing	Quantity	Gross value	Bearing	Non-bearing	Quantity	Gross value
			bushels	\$			bushels	\$
1966-67 ....	329,535	99,990	466,349	1,226,919	24,274	30,454	32,978	147,741
1967-68 ....	324,134	92,831	482,199	1,359,100	28,373	28,087	41,780	204,443
1968-69 ....	329,312	73,671	550,962	1,199,648	32,471	24,894	49,068	206,086
1969-70 ....	319,656	56,930	429,640	1,343,708	33,087	21,026	38,307	217,525
1970-71 ....	313,129	56,810	479,890	1,272,479	37,441	17,848	54,615	200,255

LEMONS AND GRAPEFRUIT—NUMBER OF TREES AND PRODUCTION

Season	Lemons (a)				Grapefruit			
	Number of trees		Production		Number of trees		Production	
	Bearing	Non-bearing	Quantity	Gross value	Bearing	Non-bearing	Quantity	Gross value
			bushels	\$			bushels	\$
1966-67 ....	44,859	7,334	141,856	200,953	9,277	1,564	20,862	42,535
1967-68 ....	43,938	6,214	142,859	235,778	8,483	1,528	18,480	44,430
1968-69 ....	42,764	4,488	153,855	277,180	8,209	1,451	20,028	50,696
1969-70 ....	40,851	2,582	140,527	256,033	7,885	1,837	17,378	56,291
1970-71 ....	39,331	3,133	148,861	268,646	8,230	2,468	16,545	95,800

(a) Includes limes.

While the Shire of Chittering is the chief citrus fruit producer, there are other important areas near Perth in the Shires of Kalamunda, Swan, Armadale-Kelmscott, Gosnells and Harvey (in order according to number of trees bearing and non-bearing). Although

oranges are by far the most important crop, substantial quantities of lemons, mandarins, and grapefruit are also produced.

Production is largely for local consumption but there is some export trade, mainly with Singapore, Malaysia, Christmas Island (Indian Ocean) and Mauritius.

### Stone Fruits

Plums, peaches, apricots, nectarines, cherries and loquats are grown in the hills districts in the Darling Range near Perth, in the Swan Valley and in many districts in the South-West. The total number of stone fruit trees (bearing and non-bearing) in 1970-71 was 190,479, comprising 87,438 plum trees, 67,554 peach trees, 20,730 apricot trees, 8,161 nectarine trees, 4,085 cherry trees and 2,511 loquat trees. The bulk of the stone fruit crop is consumed locally but shipments of plums are sent overseas, mainly to Singapore, Hong Kong, and Malaysia.

The following tables give details of production of the principal stone fruits for the five years 1966-67 to 1970-71.

PLUMS AND PEACHES—NUMBER OF TREES AND PRODUCTION

Season	Plums and prunes				Peaches			
	Number of trees		Production		Number of trees		Production	
	Bearing	Non-bearing	Quantity	Gross value	Bearing	Non-bearing	Quantity	Gross value
			bushels	\$			bushels	\$
1966-67 ....	77,594	22,563	122,505	490,847	66,299	16,230	107,669	324,286
1967-68 ....	81,045	19,876	142,943	562,585	67,140	13,275	135,834	370,863
1968-69 ....	80,109	15,263	100,243	531,383	65,060	11,392	112,067	406,579
1969-70 ....	78,877	11,808	138,489	662,036	60,246	8,743	126,473	410,794
1970-71 ....	76,460	10,978	121,309	702,455	58,813	8,741	97,166	483,149

APRICOTS AND NECTARINES—NUMBER OF TREES AND PRODUCTION

Season	Apricots				Nectarines			
	Number of trees		Production		Number of trees		Production	
	Bearing	Non-bearing	Quantity	Gross value	Bearing	Non-bearing	Quantity	Gross value
			bushels	\$			bushels	\$
1966-67 ....	20,146	5,485	33,620	148,181	7,779	2,045	11,908	60,016
1967-68 ....	20,960	5,246	36,636	148,544	7,736	1,785	14,807	63,966
1968-69 ....	20,481	4,238	35,733	152,115	7,192	1,355	13,402	79,161
1969-70 ....	18,941	3,304	34,931	125,551	7,006	1,492	14,021	83,752
1970-71 ....	17,892	2,838	26,228	183,873	6,410	1,751	8,381	70,065

### Bananas

Production of bananas is confined almost entirely to a narrow strip of land along the Gascoyne River at Carnarvon. The plantations are dependent on water pumped from bores which tap a subterranean flow in the sands of the usually dry river bed. As a surface flow in the river channel results only from heavy rains, which do not occur every year, a problem is presented in the falling-off of water supplies and in the increase in the salt content of the underground water during long dry periods. These conditions and also periodic damage from cyclones cause fluctuations in the area of the plantations and in production.

The crop is transported by road to Perth and sold locally in competition with bananas imported from other Australian States.

## BANANAS—AREA AND PRODUCTION

Season	Area		Production		
	Plants of bearing age	Young plants not bearing	Total	Average yield per acre (a)	Gross value
	acres	acres	bushels	bushels	\$
1966-67 ....	364	142	169,085	464.5	1,162,842
1967-68 ....	380	138	126,697	333.4	709,503
1968-69 ....	445	95	252,686	567.6	1,415,041
1969-70 ....	467	68	255,177	546.4	2,143,489
1970-71 ....	322	81	64,671	200.8	367,084

(a) Calculated on the area of bearing plants only.

## Vineyards

Almost three-quarters of the State's 6,708 acres of grape vines are in the Shire of Swan, other important centres being Chittering, Wanneroo, Toodyay, Gosnells and Northam.

In the dried vine fruit industry, currants are the main item of production and a high proportion of the crop is exported overseas, the United Kingdom and South Africa being the principal buyers in 1970-71. Small quantities are exported to other Australian States. Production of sultanas and table raisins is of minor importance and exports are negligible.

Table grapes are grown for the local market and for export overseas, mainly to Singapore and Malaysia. The production of beverage wines has exceeded 600,000 gallons for the past ten years, reaching a record production of over 800,000 gallons in 1968-69. Most of the wine produced is for local consumption although small amounts are exported to the other Australian States and overseas.

## GRAPES—AREA AND PRODUCTION

Season	Area		Grapes used for wine making and table use		Dried vine fruits		Wine production	
	Vines of bearing age	Young vines not bearing	Quantity	Gross value	Quantity	Gross value	Beverage (a)	Distillation
	acres	acres	'000 cwt	\$'000	'000 cwt	\$'000	'000 gallons	'000 gallons
1966-67 ....	7,304	641	148	593	28	432	705	219
1967-68 ....	7,064	601	140	630	34	462	616	213
1968-69 ....	6,733	537	157	786	37	550	837	219
1969-70 ....	6,120	531	166	945	22	337	769	246
1970-71 ....	6,018	690	162	1,021	30	437	772	226

(a) Includes spirit produced from distillation wine and used in fortification.

## Nurseries

Commercial nurseries are concentrated in the Perth Statistical Division, Kalamunda with 29 per cent of the total area of commercial nurseries being the principal centre. Most nursery production is in the form of potted shrubs, ornamental trees and cut flowers for domestic use but large numbers of fruit trees are produced for planting in orchards.

## NURSERIES (a): AREA AND VALUE OF SALES (b)

Particulars	1966-67	1967-68	1968-69	1969-70	1970-71
Area ..... acres	240	246	244	228	260
Sales (year ended 31 March) ..... \$	893,627	910,478	1,137,746	1,312,132	1,467,063

(a) Excludes non-commercial nurseries.

(b) Value at the holding, after deducting costs incurred in marketing.

### Holdings Growing Certain Crops

The following table shows the number of holdings which grew certain crops in each of the years 1966-67 to 1970-71, classified according to the area of each crop on a holding.

NUMBER OF HOLDINGS GROWING CERTAIN CROPS

Crop	1966-67	1967-68	1968-69	1969-70	1970-71
20 acres and over—					
Wheat for grain .....	8,897	8,746	8,964	8,922	8,677
Oats for grain ....	7,614	7,532	7,091	7,346	7,746
Barley for grain .....	2,782	2,905	3,631	4,974	6,787
1 acre and over—					
Grapes .....	702	665	613	560	572
Orchard fruit (all kinds) (a) .....	2,631	2,544	2,441	2,312	2,292
Bananas .....	122	112	114	116	95
Passion fruit .....	40	38	37	43	53
Linseed .....	16	36	109	217	166
Rape .....	....	....	4	12	270
All holdings (b)—					
Vegetables (all kinds) (c) .....	1,970	1,818	1,720	1,656	1,674
Potatoes .....	(d)	(d)	(d)	593	549
Onions .....	378	355	333	294	304

(a) Includes growers of citrus, pome and stone fruit but excludes growers of bananas and passion fruit, figures for crops of less than 1 acre. (b) Includes growers of potatoes and onions. (c) Includes growers of potatoes and onions. (d) Not available.

### Artificial Fertilisers

Soils in Western Australia are acutely deficient in phosphate, and regular applications of phosphatic fertiliser are required for crop and pasture growth. Newly cleared land may require applications of up to 200 lb of superphosphate per acre for satisfactory crop yields, but annual applications can be reduced as the phosphate content of the soil is improved through the residual effect of the added fertiliser. On established land, applications of 70 lb to 100 lb of superphosphate per acre are commonly used in wheat growing.

Nitrogen deficiencies also exist in some areas. Legume pastures have assisted greatly in building up nitrogen in the soil and in some situations appreciable increases in yield may be achieved by applying forms of concentrated nitrogenous fertiliser.

The following table shows details of superphosphate and other artificial fertilisers used on crops and pastures during the years 1966-67 to 1970-71.

ARTIFICIAL FERTILISER USED ON RURAL HOLDINGS

Season	Crops					Pastures				
	Area fertilised	Quantity used				Area fertilised	Quantity used			
		Super-phosphate (a)	Other artificial fertilisers	Total	Average per acre		Super-phosphate (a)	Other artificial fertilisers	Total	Average per acre
	acres	tons	tons	tons	cwt	acres	tons	tons	tons	cwt
1966-67	8,531,382	436,834	37,269	474,103	1.11	11,601,382	609,858	12,594	622,452	1.07
1967-68	8,867,662	472,304	53,650	525,954	1.19	12,596,847	676,535	17,479	694,014	1.10
1968-69	9,459,832	513,782	78,539	592,321	1.25	13,036,807	708,774	22,199	730,973	1.12
1969-70	9,648,988	512,810	97,150	609,960	1.26	14,294,841	777,606	29,369	806,975	1.13
1970-71	9,444,673	453,548	80,989	534,537	1.13	12,437,873	667,738	28,021	695,758	1.12

(a) Includes superphosphate with trace elements.

### PASTORAL PRODUCTION

Throughout this section, where mention is made of the 'pastoral areas' the portion of the State referred to comprises the Kimberley, Pilbara, North-West and Central Statistical Divisions together with the Shires of Boulder, Coolgardie, Laverton, Leonora and Menzies, which form part of the Eastern Goldfields Division. The balance of the State,

referred to as the 'agricultural areas', comprises the Perth, South-West, Southern Agricultural, Central Agricultural and Northern Agricultural Divisions together with the Shires of Dundas, Esperance, Ravensthorpe and Yilgarn in the Eastern Goldfields Division.

In the early days of settlement, pastoral activities in Western Australia were confined largely to what are now the agricultural areas and were usually associated with the cultivation of crops. However, beginning with Captain George Grey's visit in 1838 to the area known as the West Kimberley, explorers increasingly drew attention to the pastoral possibilities of large sections of the present Kimberley, Pilbara, North-West and Central Statistical Divisions.

In 1857 and 1858, F. T. Gregory noted the existence of good pastoral country in the Murchison and the Gascoyne districts and in the course of a journey further to the north in 1861 he discovered the Ashburton, Fortescue, De Grey and Oakover Rivers. His reports of good grazing lands in the area led to the establishment of sheep stations by pastoralists from the south, the first of such ventures, in 1863, being in the De Grey district of what is now the Pilbara Statistical Division. Graziers were also turning their attention to the south-east and in the 1870s pastoral lands were being taken up in the coastal areas to the south of the Nullarbor Plain. Another development in the extension of pastoral activity began with Alexander Forrest's journey through the Kimberley in 1879 and his favourable reports on the suitability of the country for grazing. Leases along the Fitzroy and the Ord Rivers were stocked not only with livestock shipped from the south and from the other Australian Colonies but also with cattle brought overland to the area, principally from Queensland and New South Wales, by remarkable feats of droving.

Pastoral production, comprising mainly the production of wool and meat, in 1969-70 contributed over 56 per cent of the total net value of Western Australian rural primary production, but this proportion fell to approximately 35 per cent in 1970-71 due to a substantial fall in the average price realised for greasy wool sold at auction.

### Sheep

The following table shows the total numbers of sheep, and their distribution between the agricultural and pastoral areas, in each year from 1946 to 1971.

SHEEP NUMBERS AND DISTRIBUTION

At 31 March—	In agricultural areas		In pastoral areas		State total
	Number	Proportion of State total (per cent)	Number	Proportion of State total (per cent)	
1946	7,029,761	72.0	2,736,222	28.0	9,765,983
1947	6,990,756	71.4	2,796,246	28.6	9,787,002
1948	7,417,053	71.0	3,026,745	29.0	10,443,798
1949	7,509,710	69.1	3,362,830	30.9	10,872,540
1950	7,518,456	68.8	3,404,711	31.2	10,923,167
1951	8,269,814	72.8	3,092,094	27.2	11,361,908
1952	9,174,640	75.3	3,013,112	24.7	12,187,752
1953	9,304,681	74.6	3,169,991	25.4	12,474,672
1954	9,921,867	75.8	3,165,241	24.2	13,087,108
1955	10,273,780	76.6	3,137,502	23.4	13,411,282
1956	10,976,121	77.7	3,152,047	22.3	14,128,168
1957	11,845,409	79.6	3,041,140	20.4	14,886,549
1958	12,704,210	80.8	3,019,753	19.2	15,723,963
1959	13,070,754	80.6	3,144,490	19.4	16,215,244
1960	13,395,527	81.6	3,016,062	18.4	16,411,589
1961	13,940,614	81.3	3,210,770	18.7	17,151,384
1962	14,951,185	81.6	3,362,694	18.4	18,313,879
1963	15,403,902	82.3	3,323,222	17.7	18,727,124
1964	16,608,300	82.4	3,556,568	17.6	20,164,868
1965	18,670,759	83.4	3,721,075	16.6	22,391,834
1966	20,695,040	84.7	3,731,768	15.3	24,426,808
1967	23,525,280	86.0	3,845,106	14.0	27,370,386
1968	26,406,575	87.6	3,754,302	12.4	30,160,877
1969	28,888,450	87.8	4,012,708	12.2	32,901,158
1970	29,844,044	88.7	3,789,913	11.3	33,633,957
1971	31,129,804	89.7	3,579,044	10.3	34,708,848

The present distribution of sheep in the State is the result of two opposite trends operating over many years. In the pastoral, or station areas where the industry is based on long-term pastoral leases, severe droughts led to a decline in the number of sheep, although some recovery has taken place in recent years. In the agricultural, or farming areas, however, the sheep population has steadily risen. Factors contributing to this rise, particularly since the war, have been the increasing use of subterranean clover in the wheat belt, the provision in many areas of more assured water supplies, a taxation policy which, by the provision of special concessions to primary producers, has encouraged farmers to clear and develop new land, the War Service Land Settlement Scheme which developed new areas and the stimulating effect of buoyant wool prices in the post-war period.

The overall result has been a marked upward trend in sheep numbers since the war, and at 31 March 1971, the State total was 34.7 million, compared with 9.77 million at the same date in 1946. Numbers in the agricultural areas increased from 7 million, or 72 per cent of the State total, to 31.1 million or nearly 90 per cent. They also increased in the pastoral areas from 2.74 million to 3.58 million, but as a percentage of the State total this represents a decline from 28 per cent to little more than 10 per cent.

**SHEEP FLOCKS AT 31 MARCH 1969**  
**CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF FLOCK**

Size of holding (acres)	Size of sheep flock (numbers)										Total, all rural holdings
	1-299	300-499	500-699	700-999	1,000- 1,399	1,400- 1,999	2,000- 2,999	3,000- 4,999	5,000 and over	Total flocks	
1- 99 .....	398	2	....	....	....	....	....	....	....	400	4,410
100- 199 .....	245	38	7	5	1	1	....	....	....	297	1,214
200- 299 .....	173	43	31	26	7	4	....	....	....	284	985
300- 399 .....	160	56	38	39	13	3	1	....	....	310	811
400- 499 .....	131	50	34	41	43	12	7	1	....	313	665
500- 599 .....	89	34	47	43	50	20	1	3	....	291	550
600- 799 .....	123	54	60	79	112	69	25	3	....	525	885
800- 999 .....	65	48	56	93	94	109	69	6	....	540	771
1,000- 1,399 .....	81	51	109	170	213	260	223	57	2	1,166	1,446
1,400- 1,999 .....	51	53	76	205	291	352	416	247	17	1,708	1,960
2,000- 2,999 .....	48	35	89	196	387	551	665	637	120	2,728	3,166
3,000- 4,999 .....	80	58	74	163	304	483	696	678	339	2,875	3,741
5,000- 9,999 .....	14	10	19	46	104	185	339	395	326	1,438	1,555
10,000-19,999 .....	3	3	....	2	6	14	41	67	127	263	279
20,000-49,999 .....	1	....	....	1	1	1	5	10	31	50	59
50,000 and over .....	3	3	3	5	5	7	7	49	305	387	507
Total ....	1,665	538	643	1,114	1,631	2,071	2,495	2,151	1,267	13,575	23,004

**SHEEP FLOCKS AT 31 MARCH 1969**  
**CLASSIFIED ACCORDING TO SIZE OF FLOCK AND AREA OF ESTABLISHED PASTURE**

Area of established pasture (acres)	Size of sheep flock (numbers)									Total, all rural holdings	
	1-299	300-499	500-699	700-999	1,000- 1,399	1,400- 1,999	2,000- 2,999	3,000- 4,999	5,000 and over		Total flocks
Nil .....	270	100	131	210	250	222	186	130	330	1,829	6,486
1- 9 .....	72	....	1	1	....	....	....	....	1	75	384
10- 19 .....	70	1	1	1	....	3	....	....	....	76	322
20- 29 .....	44	....	1	1	1	1	....	1	....	49	256
30- 49 .....	90	1	4	3	5	3	3	1	....	110	415
50- 69 .....	99	9	4	6	5	7	8	2	....	140	403
70- 99 .....	108	12	5	5	9	4	1	2	....	146	456
100- 149 .....	155	63	27	25	15	21	14	2	2	324	876
150- 199 .....	128	53	37	36	28	15	6	5	....	308	778
200- 299 .....	214	88	106	147	86	67	31	7	2	748	1,406
300- 399 .....	143	67	86	131	135	65	36	9	5	677	1,091
400- 499 .....	91	49	75	134	189	124	49	16	4	728	957
500- 699 .....	87	43	82	182	333	356	180	40	4	1,307	1,604
700- 999 .....	52	32	44	132	287	505	516	152	7	1,727	1,955
1,000-1,999 .....	30	19	34	88	268	610	1,194	1,111	161	3,515	3,741
2,000 and over .....	12	1	5	12	20	68	271	673	754	1,816	1,874
Total .....	1,665	538	643	1,114	1,631	2,071	2,495	2,151	1,267	13,575	23,004

In the preceding tables sheep flocks at 31 March 1969, in size groups, are classified according to the size of the holding and to the area of established pasture. Of the 23,004 holdings of all types, sheep were carried on 13,575. Holdings of between 1,000 and 5,000 acres accounted for 62 per cent of the flocks and holdings which carried between 1,000 and 3,000 sheep for 46 per cent of the flocks. Of the holdings carrying sheep 11,746 or 87 per cent had some established pasture and 10,518, or 77 per cent had 200 acres and over.

An analysis of collected data relating to breeds of sheep as at 31 March 1968 showed that Merinos accounted for 92 per cent of the total. Corriedales, Polwarths and British breeds, the most important of which are Border Leicester, Dorset Horn, South Down, Suffolk and Romney Marsh, comprised 4 per cent and the remaining 4 per cent was made up of Crossbreds, including Merino Comebacks. With low wool prices operating during the ten years prior to the war, some farmers turned to the production of fat lamb carcasses for export, mainly to the United Kingdom. The industry which developed as a result was based on the use of Corriedale and British breeds of rams, which in 1971 comprised about 14 per cent of the rams in the State. As a result of the high wool prices during the Korean war the 'fat lamb' industry declined sharply in 1950-51 and 1951-52 but recovered in 1952-53. The recovery in the industry was maintained for some years and exports of lamb fluctuated between 4.08 million lb in 1953-54 and 11.5 million lb in 1960-61. Increased lamb production in the United Kingdom and variable market prices then led to a sharp decline in the export of lamb, the total falling to 2.06 million lb in 1967-68. A recovery occurred in 1968-69 when 9.17 million lb were exported but the amount then declined and in 1970-71 exports totalled 6.83 million lb.

The following table shows the numbers of each breed of sheep in the State at 31 March 1971.

BREEDS OF SHEEP (a)

Breed	At 31 March 1971			
	Rams (one year and over)	Other sheep	Total	Number of holdings with rams (b)
Merino ....	401,609	31,698,273	32,099,882	10,280
Other recognised breeds—				
Border Leicester ....	8,826	187,663	196,489	761
Cheviot ....	248	1,148	1,396	34
Corriedale ....	15,425	655,236	670,661	748
Dorset Horn ....	12,898	60,752	73,650	1,247
English Leicester ....	257	1,713	1,970	12
Pol Dorset ....	2,117	10,338	12,455	152
Polwarth ....	4,918	173,463	178,381	267
Romney Marsh ....	1,895	23,416	25,311	242
Ryeland ....	389	1,829	2,218	42
Shropshire ....	293	951	1,244	23
South Down ....	13,195	49,644	62,839	1,067
South Suffolk ....	732	2,971	3,703	98
Suffolk ....	4,472	31,756	36,228	721
Other ....	39	20	59	7
Total, Other recognised breeds ....	65,704	1,200,900	1,266,604	(e)
Merino Comeback (c) ....	1,035	361,743	362,778	59
Crossbreds (d) and other mixed breeds ....	1,687	977,897	979,584	(e)
GRAND TOTAL ....	470,035	34,238,813	34,708,848	12,133

(a) Statistics collected triennially. (b) Components do not add to total because more than one breed of ram may be reported by any one holding. (c) More than one-half Merino. (d) British breed to the extent of one-half or more. (e) Not available; see footnote (b).

## Wool

Total wool production in 1970-71 amounted to 158,967 tonnes, compared with 87,163 tonnes ten years earlier. Shorn wool in 1970-71 accounted for 151,121 tonnes. It was shorn from 37.1 million sheep and lambs, the average weight of wool shorn being

4.1 kg, compared with 4.0 kg in the previous season. The balance of the 1970-71 production comprised 688 tonnes of dead and fellmongered wool, and 7,159 tonnes of wool exported on skins.

During the war years wool was compulsorily acquired by the Commonwealth Government in accordance with an agreement with the United Kingdom. The scheme was administered by the Central Wool Committee and the price paid was determined by a system of appraisal which, however, operated within limits agreed upon by the two Governments. During this period large stocks of wool were accumulated and after the war an organisation was formed with the object of selling this surplus with the least possible disturbance to ruling prices. Government control of wool ceased after the war and wool auctions operated by members of the National Council of Wool Selling Brokers of Australia were resumed in Perth in 1946. These sales are attended by Australian and overseas buyers who bid for individual lots. Some wool is auctioned at sales conducted independently of the National Council and a significant portion of the clip is purchased on farms by wool dealers who buy direct from producers. In September 1957, auctions were held at Albany for the first time. Sales in Perth were discontinued in 1960 and the selling centre was transferred to Fremantle.

The number of sheep and lambs shorn, the average weight of wool shorn per sheep or lamb, and production of wool for five years to 30 June 1971 are given in the following table. The succeeding table shows the gross value of wool production for the same period.

## SHEEP SHORN AND WOOL PRODUCTION

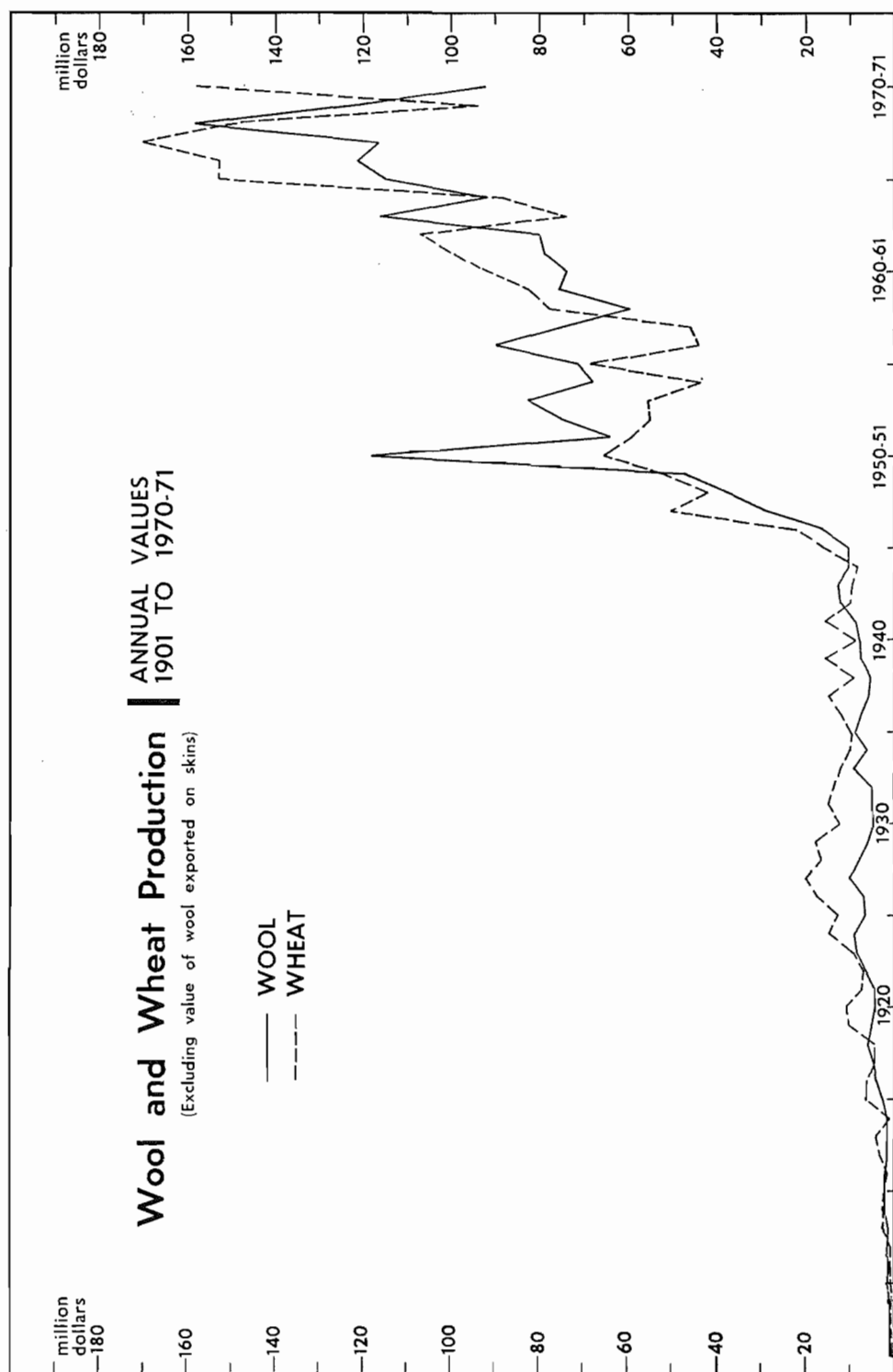
Year	Sheep shorn			Average weight of wool shorn	Wool production (in the grease)			
	Sheep	Lambs	Total		Shorn	Dead and fellmongered	Exported on skins	Total
	'000	'000	'000	kg (a)	tonnes (a)	tonnes (a)	tonnes (a)	tonnes (a)
1966-67	22,824	5,857	28,681	4.1	118,636	1,296	3,965	123,898
1967-68	25,249	6,560	31,809	4.1	129,855	1,525	4,802	136,182
1968-69	28,438	7,404	35,842	4.5	162,818	1,489	6,084	170,392
1969-70	28,541	6,989	35,530	4.0	143,481	1,046	7,434	151,961
1970-71	30,277	6,857	37,134	4.1	151,121	687	7,159	158,967

(a) 1 tonne = 1,000 kilograms, 1 kg = 2.2 lb approximately.

## GROSS VALUES OF WOOL PRODUCTION (\$'000)

Year	Shorn wool	Dead wool and fellmongered wool	Wool exported on skins	Total
1966-67	120,437	1,072	3,312	124,821
1967-68	115,756	897	2,493	119,146
1968-69	157,544	720	3,325	161,589
1969-70	120,266	554	4,010	124,829
1970-71	91,854	156	2,501	94,510

Although the greater proportion of the wool clip is exported in the grease, scouring, or degreasing, is done in the State and degreased wool is an appreciable item in the external wool trade. During 1970-71 exports of greasy and degreased wool were 119,137 tonnes and 9,251 tonnes respectively. The most important buyers of greasy wool were Japan, the Federal Republic of Germany, the Union of Soviet Socialist Republics, France, Belgium-Luxembourg, Italy and the United Kingdom. Principal purchasers of degreased wool were the United Kingdom, the Federal Republic of Germany, Italy, other Australian States, India, the Union of Soviet Socialist Republics and France. Further details of exports of greasy and degreased wool, both interstate and overseas, are given in Chapter IX, Part 1—*External Trade*.



## Cattle

Cattle are classified according to the two main purposes of 'meat production' and 'milk production', irrespective of breed.

The table below shows the numbers of cattle for meat production kept on rural holdings at 31 March 1967 to 1971. The table on page 366 details, for the same period, the numbers kept for milk production. Cattle numbers in each State and Territory at 31 March 1971 are given in the second table on page 369.

In 1971 the Kimberley Statistical Division carried 624,330 head of cattle for meat production, or 39.0 per cent of the State total. Other pastoral areas carried 117,004 head and agricultural areas 861,297.

The cattle which were originally shipped or driven overland from the other Australian Colonies to start the industry in the northern pastoral areas were predominantly shorthorn breeds, and these still form the great bulk of all cattle kept for meat production in those areas. Carcass weights, however, have been increased by importing better-type bulls, by improving watering facilities on the cattle stations and by the almost complete replacement of droving by the transport of the animals from stations to abattoirs in large road trucks.

Killing and freezing works operate at the ports of Wyndham, Broome and Derby and consignments of frozen and chilled beef from these centres go mainly to overseas destinations. Some of it is sent south for consumption in the metropolitan area and live cattle are also shipped from northern ports to be slaughtered for the metropolitan market. By far the greater proportion of beef consumed in the southern part of the State, however, is supplied from the agricultural areas, some of it being from stock culled from dairy herds.

The following table shows the numbers and proportions of cattle for meat production in agricultural areas and in pastoral areas at 31 March 1967 to 1971. The agricultural areas have become an increasingly important source of meat production in recent years, and now contain more than half of the cattle kept for this purpose.

CATTLE FOR MEAT PRODUCTION—NUMBERS AND DISTRIBUTION

Particulars	At 31 March—				
	1967	1968	1969	1970	1971
Number of head—					
In agricultural areas ....	532,608	596,104	660,250	737,496	861,297
In pastoral areas ....	625,304	638,834	703,229	761,519	741,334
Total ....	1,157,912	1,234,938	1,363,479	1,499,015	1,602,631
	per cent	per cent	per cent	per cent	per cent
Proportion of total—					
In agricultural areas ....	46.0	48.3	48.4	49.2	53.7
In pastoral areas ....	54.0	51.7	51.6	50.8	46.3

In the first two tables on page 364 herds of cattle kept for meat production at 31 March 1969, in size groups, are classified according to the size of the holding and the area of established pasture. Of the 23,004 rural holdings of all types, cattle for meat production were carried on 8,902. Holdings of between 1,000 and 5,000 acres accounted for 40 per cent of the herds, and holdings which carried less than fifty cattle for meat production for 57 per cent of the herds. Of the holdings carrying cattle for meat production 7,931, or 89 per cent, had some established pasture and 5,988, or 67 per cent, had 200 acres and over.

The third table on page 364 gives details of slaughterings in abattoirs, butcheries and on stations and farms. A table showing particulars of pigs slaughtered and pigmeat produced appears on page 369.

## PRIMARY PRODUCTION

**CATTLE FOR MEAT PRODUCTION AT 31 MARCH 1969**  
**CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF HERD**

Size of holding (acres)	Size of cattle herd (numbers)										Total, all rural holdings
	1-9	10-19	20-29	30-49	50-99	100-199	200-299	300-999	1,000 and over	Total herds	
1- 99 .....	397	177	90	48	23	1	....	....	....	736	4,410
100- 199 .....	155	110	96	143	133	10	3	....	....	650	1,214
200- 299 .....	119	73	73	115	179	56	4	1	....	620	985
300- 399 .....	80	60	53	80	140	107	8	1	....	529	811
400- 499 .....	68	42	32	69	114	96	17	5	....	443	665
500- 599 .....	42	39	36	39	96	75	27	7	....	361	550
600- 799 .....	68	44	33	74	137	117	60	22	....	555	885
800- 999 .....	62	31	29	50	85	96	41	29	....	423	771
1,000- 1,399 .....	135	68	50	85	120	113	46	49	1	667	1,446
1,400- 1,999 .....	189	92	59	100	149	104	49	46	....	788	1,960
2,000- 2,999 .....	314	110	93	132	188	134	55	53	3	1,082	3,166
3,000- 4,999 .....	306	111	72	139	195	127	43	56	5	1,054	3,741
5,000- 9,999 .....	172	56	29	54	91	74	26	52	2	556	1,555
10,000-19,999 .....	22	12	5	10	17	18	6	25	7	122	279
20,000-49,999 .....	4	1	1	....	4	2	3	8	4	27	59
50,000 and over .....	14	12	7	22	34	32	23	45	100	289	507
Total .....	2,147	1,038	758	1,160	1,705	1,162	411	399	122	8,902	23,004

**CATTLE FOR MEAT PRODUCTION AT 31 MARCH 1969**  
**CLASSIFIED ACCORDING TO SIZE OF HERD AND AREA OF ESTABLISHED PASTURE**

Area of established pasture (acres)	Size of cattle herd (numbers)										Total, all rural holdings
	1-9	10-19	20-29	30-49	50-99	100-199	200-299	300-999	1,000 and over	Total herds	
Nil .....	297	109	72	112	124	83	30	49	95	971	6,486
1- 9 .....	99	17	6	1	1	1	....	....	....	125	384
10- 19 .....	90	32	5	7	2	....	....	....	....	136	322
20- 29 .....	54	40	14	4	2	....	....	....	....	114	256
30- 49 .....	63	63	36	16	8	1	1	....	....	188	415
50- 69 .....	52	51	53	31	15	....	....	....	....	202	403
70- 99 .....	48	42	58	65	41	3	....	....	....	257	456
100- 149 .....	92	67	49	131	124	11	3	....	....	477	876
150- 199 .....	107	57	38	64	145	30	2	....	1	444	778
200- 299 .....	158	80	70	111	209	142	11	5	....	786	1,406
300- 399 .....	98	53	46	72	140	159	22	3	....	593	1,091
400- 499 .....	77	41	37	56	99	100	39	7	1	457	957
500- 699 .....	162	56	55	83	168	147	75	39	1	786	1,604
700- 999 .....	175	86	61	121	152	139	64	58	....	856	1,955
1,000-1,999 .....	378	178	113	195	289	200	102	129	4	1,588	3,741
2,000 and over .....	197	66	45	91	186	146	62	109	20	922	1,874
Total .....	2,147	1,038	758	1,160	1,705	1,162	411	399	122	8,902	23,004

## Slaughtering

## LIVESTOCK SLAUGHTERED AND MEAT PRODUCED

Year	Livestock slaughtered (a)								Meat produced (b)	
	Sheep		Lambs		Cattle		Calves		Mutton and lamb	Beef and veal
	Number	Gross value (c)	Number	Gross value (c)	Number	Gross value (c)	Number	Gross value (c)		
1966-67 .....	'000	\$'000	'000	\$'000	'000	\$'000	'000	\$'000	tons	tons
1966-67 .....	1,695	8,912	905	6,829	284	25,836	17	734	46,381	54,811
1967-68 .....	2,036	8,418	1,165	7,177	309	27,750	24	958	55,059	59,249
1968-69 .....	2,413	8,953	1,431	8,057	347	34,652	20	961	67,713	67,751
1969-70 .....	3,229	10,140	1,371	8,037	384	37,425	20	875	76,814	71,902
1970-71 .....	3,005	8,350	1,486	6,837	342	37,344	8	429	77,401	63,318

(a) Mainly slaughtering for human consumption but also includes small numbers of livestock slaughtered for boiling down.  
 Details of pigs slaughtered and production of pigmeat are shown on page 369. (b) Dressed carcass weight; excludes condemned carcasses and offal.  
 (c) Value 'on hoof' at principal market.

Beef from cattle slaughtered at Wyndham, Broome and Derby in the Kimberley Division is principally for export. The local market for meat is supplied mainly from abattoirs at Midland, Fremantle, Waroona, Harvey, Bunbury, Albany, Geraldton, Wooroloo and Kalgoorlie but most of these establishments also slaughter for the export trade. Small establishments operating in country towns also contribute substantially to total production, and most stations and many farms slaughter sufficient for all or part of their own requirements.

## DAIRYING

Compared with the wheat, wool and meat producing industries, dairying as a major well-organised rural activity is of fairly recent origin. Its growth was retarded initially by the difficulty of clearing heavily-timbered country in the South-West and the need for special methods of pasture establishment, but these problems have been progressively overcome and dairying is now a significant feature of primary production, although only limited development has taken place in recent years.

Until the establishment of the first butter factory at Busselton in 1898, dairy farming in Western Australia was essentially for the production of whole milk, although small quantities of farm butter were marketed. As more factories commenced processing, the industry steadily developed and its growth was further stimulated by the establishment of irrigation areas, the first at Harvey in 1916, and by the introduction of the Group Settlement Scheme in 1921. Another important factor in increasing production was the successful establishment of subterranean clover which resulted in a marked improvement in pastures.

The industry has been assisted by the extensive experimental work carried out by the Department of Agriculture and the advisory service which it provides on all aspects of dairy farming.

Price instability has been one of the major difficulties of the industry and in 1926 the 'Paterson Plan', which was a voluntary scheme of price stabilisation, was introduced. It met with considerable success but weaknesses finally became apparent and it was abandoned in 1934 in favour of the Dairy Products Marketing Regulation Act passed by the State Parliament. On 1 April 1946, Western Australia entered the voluntary butter price equalisation scheme, operated since 1936 by the Commonwealth Dairy Produce Equalisation Committee Limited, and in January 1947 the State extended its participation to include cheese. The Committee, which comprises certain members of the State Dairy Products Boards and other persons representing the industry, enters into agreements with manufacturers to secure to them equal rates from sales of butter and also of cheese, and for this purpose may fix basic prices at which these products sold in Australia or abroad are to be taken into account. The effect is that local and export trade are distributed among manufacturers in equitable proportions. The Committee fixes basic prices and equalises returns to factories through an Equalisation Fund. In addition, subsidies provided by the Commonwealth Government are distributed by the Committee, through factories to dairy farmers, by payments on butter and cheese manufactured. The fifth five-year stabilisation plan, which came into operation on 1 July 1972, provides a minimum bounty of \$27 million annually for the Australian industry. The actual amount of the assistance provided by the Commonwealth each year will be determined at the commencement of the year in the light of the needs of the industry and taking into account action by the States in the adoption of an effective scheme to control production. The average subsidy rates per cwt in 1970-71 were \$9.40 on butter and \$4.24 on cheese.

From 1942 until 30 June 1948, and again from 1 July 1949 to 30 June 1952, a subsidy was paid by the Commonwealth Government on milk supplied for the manufacture of processed milk products. By means of the *Processed Milk Products Bounty Act* 1962, the Commonwealth provided for payment of a maximum amount of \$700,000 as a bounty on exports of processed milk products during the year ended 30 June 1963. For the purpose of the Act, processed milk products are goods containing butterfat and produced

from cow's milk, but excluding butter, cheese and certain other specified goods. By later amendments to the Act, bounty was continued up to a maximum of \$1,000,000 in respect of exports during 1963-64 and of \$800,000 on those for 1964-65. Subsequent amendments extend the operations of the Act until 30 June 1977, the maximum amount of bounty payable each year being maintained at \$800,000.

The following table shows the numbers of cattle kept for milk production on rural holdings at 31 March 1967 to 1971.

## CATTLE FOR MILK PRODUCTION

Particulars	At 31 March—				
	1967	1968	1969	1970	1971
	number	number	number	number	number
Bulls of dairy breeds used or intended for service—					
Aged one year and over	3,324	3,087	2,739	2,666	2,627
Calves (aged under one year)	1,615	1,301	1,303	1,741	1,357
Total	4,939	4,388	4,042	4,407	3,984
Cattle used or intended for production of—					
Milk or cream for sale—					
Cows—In milk and dry	102,920	99,547	97,122	101,094	96,438
Heifers—Aged one year and over	49,904	49,624	46,369	36,530	38,841
Heifer calves—Aged under one year	31,941	29,536	27,709	33,202	32,956
Milk or cream for use on rural holdings—					
House cows and heifers	9,426	8,903	7,533	6,842	6,499
Total	194,191	187,610	178,733	177,668	174,734
Total cattle for milk production	199,130	191,998	182,775	182,075	178,718

In the next two tables herds of cattle kept for milk production at 31 March 1969, in size groups, are classified according to the size of the holding and the area of established pasture. Of the 23,004 rural holdings of all types, cattle for milk production were carried on 2,299. Holdings of between 1,000 and 5,000 acres accounted for 20 per cent of the herds but 66 per cent of these herds had less than ten head each. All holdings with less than ten head accounted for 28 per cent of the herds in the State. Of the holdings carrying cattle for milk production 2,152, or 94 per cent, had some established pasture and 1,443, or 63 per cent, had 200 acres and over.

CATTLE FOR MILK PRODUCTION (a) AT 31 MARCH 1969  
CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF HERD

Size of holding (acres)	Size of cattle herd (numbers)										Total, all rural holdings
	1-4	5-9	10-19	20-39	40-59	60-79	80-99	100-149	150 and over	Total herds	
1- 19	19	2	2	1	...	...	...	...	1	25	2,675
20- 29	7	3	2	2	...	...	...	1	...	15	541
30- 49	10	6	7	2	...	...	...	...	...	25	538
50- 69	3	3	3	6	3	...	...	...	...	16	309
70- 99	11	3	1	13	4	5	2	...	...	39	347
100- 149	21	4	13	24	28	20	10	6	2	128	655
150- 199	12	...	11	30	32	26	21	16	1	149	559
200- 299	31	2	7	39	58	80	62	50	15	344	985
300- 399	23	1	5	20	38	59	35	72	39	292	811
400- 499	17	1	4	7	28	35	35	54	37	218	665
500- 699	25	2	3	12	22	40	35	77	75	291	1,048
700- 999	32	1	2	7	8	13	18	39	75	195	1,158
1,000-1,999	40	1	3	6	11	7	6	14	28	116	1,446
1,400-1,999	60	2	1	...	4	5	5	5	26	108	1,960
2,000-4,999	187	9	2	1	4	4	1	4	19	231	6,907
5,000 and over	96	4	2	1	...	1	...	1	2	107	2,400
Total	594	42	68	171	240	295	230	339	320	2,299	23,004

(a) Excludes herds with no cattle for milk production other than house cows.

**CATTLE FOR MILK PRODUCTION (a) AT 31 MARCH 1969**  
**CLASSIFIED ACCORDING TO SIZE OF HERD AND AREA OF ESTABLISHED PASTURE**

Area of established pasture (acres)	Size of cattle herd (numbers)										Total, all rural holdings
	1-4	5-9	10-19	20-39	40-59	60-79	80-99	100-149	150 and over	Total herds	
Nil ....	75	6	4	6	11	14	14	11	6	147	6,486
1- 9 ....	12	2	2	....	....	....	....	....	....	16	384
10- 19 ....	10	1	4	3	2	....	1	2	....	23	322
20- 29 ....	10	5	3	4	2	1	1	1	....	27	256
30- 49 ....	7	5	9	11	1	2	4	2	....	37	415
50- 69 ....	15	2	6	14	5	2	4	....	1	49	403
70- 99 ....	15	3	2	30	17	9	3	2	....	81	456
100- 149 ....	25	....	16	36	59	37	18	8	2	201	876
150- 199 ....	23	2	5	28	52	84	45	29	7	275	778
200- 299 ....	39	1	8	15	46	71	88	97	30	395	1,406
300- 399 ....	25	1	3	6	16	34	20	90	53	248	1,091
400- 499 ....	31	1	....	8	16	22	14	50	48	190	957
500- 699 ....	45	1	3	8	7	11	9	32	89	205	1,604
700- 999 ....	49	2	1	2	2	6	10	10	43	125	1,955
1,000-1,999 ....	128	4	1	....	3	3	2	5	34	180	3,741
2,000 and over ....	85	6	1	....	1	....	....	....	7	100	1,874
Total ....	594	42	68	171	240	295	230	339	320	2,299	23,004

(a) Excludes herds with no cattle for milk production other than house cows.

The quantity and gross value of whole milk produced in each of the years 1966-67 to 1970-71 are given in the following table.

**WHOLE MILK PRODUCTION (a)**

Particulars							1966-67	1967-68	1968-69	1969-70	1970-71
Quantity ....	....	....	....	....	....	'000 gal	55,611	55,411	58,222	55,873	56,277
Gross value (b) ....	....	....	....	....	....	\$'000	15,087	15,335	16,697	16,255	17,766

(a) Year ended 30 June. Includes milk used for processing into butter, cheese and condensery products. Details of butter and cheese production appear in Part 2 of this Chapter.

(b) Includes subsidy paid by Commonwealth Government.

## Pig Raising

For many years the rearing of pigs has been carried on in conjunction with the production of butterfat as cream, thus providing a practical means of using the skim milk obtained. This is now on the decline, however, owing to the current trend for whole milk to be supplied in bulk by the dairy farmers direct to processing plants. In the main, pigs are now raised on grain-growing holdings and in 1971 almost 80 per cent of the pigs in the State were in the wheat belt. There are also a number of farmers in the districts around Perth who specialise in pig raising and in fattening for market pigs obtained from country areas.

The principal breeds in Western Australia are the Berkshire, Large White and Landrace and crosses of these breeds. Pigs are reared for bacon and ham as well as pork and, although the greater proportion of production is consumed locally, there is some export trade, mainly to other Australian States. In 1970-71 a total of 2,270,260 lb of pork was shipped interstate and 212,233 lb overseas, mainly to Singapore, the United Kingdom, Christmas Island (Indian Ocean), the Trucial States and Iran.

In the first two tables on page 368 pig herds at 31 March 1969, in size groups, are classified according to the size of the holding and the size of the herd of cattle for milk production on the holding. Of the 23,004 rural holdings of all types, pigs were carried on 3,771. Holdings with between 1,000 and 5,000 acres of land accounted for 57 per cent of the pig herds and those which carried over fifty head for 37 per cent of the herds. Of the holdings carrying pigs 685, or 18 per cent, had some cattle for milk production and 477, or 13 per cent, had ten or more cattle for milk production.

**PIG HERDS AT 31 MARCH 1969  
CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF HERD**

Size of holding (acres)	Size of pig herd (numbers)										Total, all rural holdings
	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-99	100 and over	Total herds	
1- 19 .....	29	11	7	7	6	7	5	21	34	127	2,675
20- 29 .....	5	2	7	....	3	2	1	9	9	38	541
30- 49 .....	7	3	2	3	5	5	....	12	11	48	538
50- 69 .....	4	2	1	2	6	5	1	6	10	37	309
70- 99 .....	7	2	7	3	3	5	4	10	11	52	347
100- 149 .....	13	9	8	4	9	11	4	13	12	83	655
150- 199 .....	12	7	5	3	7	1	6	14	7	62	559
200- 299 .....	18	17	8	14	18	7	8	36	18	144	985
300- 399 .....	23	16	9	6	17	17	6	17	16	127	811
400- 499 .....	18	16	5	9	10	4	8	14	13	97	665
500- 699 .....	13	10	14	15	19	13	15	28	19	146	1,048
700- 999 .....	14	18	11	10	25	23	14	32	20	167	1,158
1,000-1,999 .....	26	20	20	24	48	30	19	50	34	271	1,446
1,400-1,999 .....	19	27	36	31	67	54	40	114	56	444	1,960
2,000-4,999 .....	80	106	96	97	190	187	148	363	183	1,450	6,907
5,000 and over .....	29	30	32	32	48	54	41	130	82	478	2,400
<b>Total</b> ....	<b>317</b>	<b>296</b>	<b>268</b>	<b>260</b>	<b>481</b>	<b>425</b>	<b>320</b>	<b>869</b>	<b>535</b>	<b>3,771</b>	<b>23,004</b>

**PIG HERDS AT 31 MARCH 1969, ACCORDING TO SIZE OF HERD  
OF CATTLE FOR MILK PRODUCTION AND SIZE OF PIG HERD**

Size of herd of cattle for milk production (numbers)	Size of pig herd (numbers)										Total, all rural holdings
	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-99	100 and over	Total herds	
Nil .....	235	219	217	208	389	370	273	728	447	3,086	20,705
1- 4 .....	14	16	13	12	28	16	12	49	31	191	594
5- 9 .....	2	2	3	....	3	....	5	1	1	17	42
10- 14 .....	....	1	2	....	2	3	....	1	2	11	35
15- 19 .....	5	....	1	1	1	3	....	1	....	13	33
20- 29 .....	4	6	4	2	3	2	1	3	....	25	71
30- 39 .....	4	5	1	2	4	....	2	7	....	26	100
40- 49 .....	3	4	7	3	3	2	3	6	2	33	111
50- 59 .....	10	15	1	5	7	3	3	9	2	55	129
60- 69 .....	7	6	7	10	9	4	3	10	5	61	167
70- 79 .....	5	6	2	5	4	8	3	10	7	50	128
80- 89 .....	5	5	2	2	10	3	3	9	2	41	121
90- 99 .....	2	1	4	4	3	2	2	6	6	30	109
100-149 .....	10	7	4	3	13	7	7	21	16	88	339
150-199 .....	5	3	....	3	1	2	2	5	3	24	158
200 and over .....	6	....	....	....	1	....	....	3	10	20	162
<b>Total</b> ....	<b>317</b>	<b>296</b>	<b>268</b>	<b>260</b>	<b>481</b>	<b>425</b>	<b>320</b>	<b>869</b>	<b>535</b>	<b>3,771</b>	<b>23,004</b>

In the table below, the numbers of pigs on rural holdings at 31 March are shown for each of the years 1967 to 1971. The number of pigs at 31 March 1971 was 277,501, maintaining the steady increase since 1964 when the number was 128,140 or less than half the current total.

**PIG NUMBERS**

At 31 March—				Boars	Breeding Sows	Other pigs (a)		Total
						Under six months	Six months and over	
1967	....	....	....	3,302	23,652	134,029		160,983
1968	....	....	....	3,653	26,913	151,941		182,507
1969	....	....	....	4,076	32,143	183,568		219,787
1970	....	....	....	4,174	34,645	211,232		250,051
1971	....	....	....	4,440	41,925	166,697	64,439	277,501

(a) Includes baconers, porkers, suckers, weaners and slips, for which separate age details were not collected prior to 1971.

The next table shows the numbers and gross value of pigs slaughtered in each of the years 1966-67 to 1970-71, together with the quantity of meat produced. Factory production of bacon and ham is also shown.

## PIGS SLAUGHTERED (a) AND MEAT PRODUCED

Year	Pigs slaughtered		Pigmeat produced (c)	Bacon and ham produced (d)
	Number	Gross value (b)		
		\$'000	'000 lb	'000 lb
1966-67 ....	214,637	6,021	25,948	10,289
1967-68 ....	243,312	7,809	29,476	11,404
1968-69 ....	263,774	7,407	31,375	12,133
1969-70 ....	317,188	8,813	37,448	12,855
1970-71 ....	317,906	8,612	36,893	13,622

(a) Comprises slaughterings in abattoirs, butcheries and on stations and farms.  
 or at factory door. (b) Value 'on hoof' at principal market  
 (c) Dressed carcass weight; excludes condemned carcasses and offal but includes quantities used to produce bacon and ham.  
 (d) Factory production.

## LIVESTOCK IN AUSTRALIA

The following table gives details of livestock numbers in each State and Territory of Australia at 31 March 1971.

LIVESTOCK NUMBERS AT 31 MARCH 1971—AUSTRALIA  
(Thousands)

State or Territory	Sheep	Cattle				Pigs
		Bulls (1 year and over) used or intended for service	For production of milk or cream	Mainly for meat production	Total	
New South Wales ....	70,605	115	827	5,551	6,494	796
Victoria ....	33,761	100	1,930	3,032	5,061	520
Queensland ....	14,774	160	653	7,131	7,944	491
South Australia ....	19,166	25	226	946	1,196	389
Western Australia ....	34,709	35	175	1,571	1,781	278
Tasmania ....	4,517	12	234	487	733	113
Northern Territory ....	(a) 9	32	(b)	1,113	1,145	3
Australian Capital Territory ....	251	(b)	2	16	18	(b)
Australia ....	(c) 177,792	479	4,047	19,847	24,373	2,590

(a) At 30 June 1971.

(b) Less than 500.

(c) See footnote (a).

## POULTRY FARMING

Poultry farming in Western Australia is now mainly a specialist industry and a large proportion of the egg production is on holdings which carry sufficient birds to make the activity the sole or predominant source of income. Most of the commercial poultry farms are situated in the Perth Statistical Division, within a thirty-mile radius of Perth, but birds are also kept for commercial production on orchards, dairy farms and wheat farms throughout the agricultural areas.

On specialist poultry farms modern developments in breeding, sexing and nutrition have resulted in considerably higher egg production per bird. Egg-producing birds are largely first-cross hens, bred mainly from White Leghorn cocks and Australorp hens. Production of poultry meat has increased considerably in recent years. It is now predominantly a specialised industry using strains of birds which have been developed specifically for meat production.

Under the *Marketing of Eggs Act, 1945-1970*, all producers in the South-West Land Division are required to market their eggs either through the Western Australian Egg Marketing Board or under the permit system which is administered by the Board. The principal purpose of this legislation is to ensure satisfactory disposal of eggs, including that surplus over local requirements which is consistently produced and which must be sold overseas at prices which usually do not offer a reasonable return to the producer. In order to provide a fund with which to equalise returns from local and export sales the

Board, prior to 1 July 1965, made a charge on all eggs sold locally. This charge was subsequently replaced by a levy imposed by Commonwealth legislation which came into operation on 1 July 1965.

The *Poultry Industry Levy Act* 1965-1966 provides for the imposition throughout Australia of a levy on hens not less than six months old kept for commercial purposes. Special exemptions are made in respect of 'broiler breeder hens', being hens used to produce chickens for table purposes. The levy, which does not apply to flocks of fewer than twenty-one hens, nor to the first twenty hens in any flock, is payable fortnightly and may not exceed \$1 annually per bird. In June 1972 the levy stood at 4c per fortnight for each hen.

Under the *Poultry Industry Levy Collection Act* 1965-1966 the authority responsible for the collection of the levy in this State is the Western Australian Egg Marketing Board. The *Poultry Industry Assistance Act* 1965-1966 establishes a Poultry Industry Trust Fund for the receipt of the amount of the levy and other moneys. The Act provides for payment from the Fund to a State, by way of financial assistance, of such amounts as the Commonwealth Minister may determine upon the recommendation of The Council of Egg Marketing Authorities of Australia.

Although the Commonwealth levy replaces the egg equalisation levies formerly imposed by the several State authorities for the purpose of equalising returns from local markets and export sales, the State authorities continue to make charges necessary to defray the costs of handling, grading and marketing of eggs.

In 1970-71 Kuwait, Saudi Arabia, the Bahrain Islands, the Trucial States, India and Muscat and Oman were the most important overseas markets for eggs in the shell. Exports of egg pulp in 1970-71 were valued at \$192,232.

#### POULTRY NUMBERS (a)

At 31 March—							Fowls	Ducks	Turkeys
1967	....	....	....	....	....	....	2,460,144	25,831	22,678
1968	....	....	....	....	....	....	2,865,676	30,254	23,225
1969	....	....	....	....	....	....	3,299,907	22,078	21,399
1970	....	....	....	....	....	....	3,230,492	28,005	22,550
1971	....	....	....	....	....	....	3,591,548	34,679	28,575

(a) Figures include details of poultry for non-commercial purposes on rural holdings.

#### EGGS SOLD AND POULTRY SLAUGHTERED (a) FOR TABLE PURPOSES

Year ended 31 March—							Eggs sold (b)		Poultry slaughtered for table purposes (c)	
							Quantity	Gross value	Dressed weight	Gross value
							'000 dozen	\$'000	'000 lb	\$'000
1967	....	....	....	....	....	....	9,441	4,784	16,634	4,922
1968	....	....	....	....	....	....	11,521	5,064	18,759	5,501
1969	....	....	....	....	....	....	11,708	5,785	22,653	6,412
1970	....	....	....	....	....	....	12,188	6,253	23,668	6,702
1971	....	....	....	....	....	....	13,749	6,724	28,492	7,795

(a) Excludes non-commercial production. (b) Figures revised since previous issue due to change in source of data. Figures shown were supplied by the Western Australian Egg Marketing Board. (c) Year ended 30 June.

#### BEE KEEPING

Commercial producers of honey in Western Australia may be divided into three categories. There are a comparatively small number of specialist apiarists, engaged solely or mainly in honey production, who operate on a large scale and transport their hives from district to district. There are also some substantial producers who are engaged in agricultural activities and use their farms as a central site from which they may transport their hives

to other areas as necessary. Finally there are the many farmers and orchardists who keep a few hives and produce honey as a minor supplementary activity. This pattern of production is illustrated by the following table.

BEE KEEPERS, BEEHIVES AND HONEY PRODUCTION (a)—1970-71

Classification of hives (a)	Bee keepers (b)		Productive beehives (c)		Honey production	
	Number	Proportion of total (per cent)	Number	Proportion of total (per cent)	Quantity	Proportion of total (per cent)
5- 19 .....	196	48.40	505	1.55	11,634	0.38
20- 49 .....	82	20.25	846	2.59	34,014	1.12
50- 99 .....	24	5.93	861	2.64	49,654	1.64
100-199 .....	37	9.14	3,304	10.12	227,673	7.53
200-299 .....	15	3.70	1,827	5.60	150,938	4.99
300-499 .....	27	6.67	7,844	24.03	751,232	24.84
500-799 .....	18	4.44	9,255	28.35	1,120,188	37.03
800 and over .....	6	1.48	8,206	25.13	679,555	22.47
Total .....	405	100.00	32,648	100.00	3,024,888	100.00

(a) Excludes details of bee keepers with less than 5 hives. (b) At 30 June 1971. (c) Represents the number of hives at 30 June 1971 from which honey was taken during the year and excludes hives kept for production but from which no honey was taken, nuclei, pollination hives, etc.

In 1970-71 exports of honey totalled 2,722,255 lb, the export value being \$449,452. The principal buyers were the United Kingdom, which purchased 1,282,186 lb; Denmark, 238,455 lb; and Malaysia, 220,507 lb.

BEEHIVES AND PRODUCTION OF HONEY AND BEES-WAX (a)

Year	Beehives (b)		Honey production		Bees-wax production	
	Productive (c)	Unproductive (d)	Quantity	Gross value	Quantity	Gross value
	number	number	'000 lb	\$'000	'000 lb	\$'000
1966-67 .....	40,830	10,402	6,882	440	99	44
1967-68 .....	37,960	10,823	3,410	212	49	27
1968-69 .....	35,394	10,299	6,553	491	94	51
1969-70 .....	37,156	7,920	7,409	600	99	58
1970-71 .....	32,648	10,868	(e) 3,025	266	52	29

(a) Excludes particulars of bee keepers with less than 5 hives. (b) Number at 30 June. (c) Hives from which honey was taken during the year. (d) Includes hives kept for production but from which no honey was taken during the year, nuclei, pollination hives, etc. (e) Lowest recorded since 1954-55.

## THE DEPARTMENT OF AGRICULTURE

Brief references have been made earlier in this Part to the important services rendered to rural producers by the Department of Agriculture. The Department is the branch of the State Government Service responsible for bringing scientific advice to farmers and pastoralists, for carrying out research into a wide range of technical problems and for administering Acts of Parliament dealing with agricultural and pastoral matters. Its activities can be classified under the four headings: investigation or research; advisory, now more commonly called 'extension' functions; provision of certain services for the assistance of the man on the land; and regulatory work which consists of carrying out the provisions of some of the laws relating to agriculture.

The operations of the Department are organised under a series of Divisions and Branches, the heads of which are responsible to the Director of Agriculture. The Divisions are Animal (including Animal Health and Nutrition Laboratory and sections for Veterinary Services, Animal Husbandry, Apiculture, Poultry and Brands), Wheat and Sheep (including the Cereal Products and Fleece Testing Laboratories), Dairying, Horticulture (covering Fruit, Viticulture and Vegetables), Soils (including Soil Conservation,

Irrigation and Range Land Management), Plant Research and Biological Services (including Plant Pathology, Entomology, Botany, Seed Certification and Weed Control). In addition there are separate sections covering Rural Economics and Marketing, Information, Abattoirs and Library and close liaison is maintained with the Agriculture Protection Board.

Sections of government administration known as Departments of Agriculture usually originated in the demands of farmers for government assistance in coping with their technical problems. The Western Australian Department of Agriculture had its origin in a Bureau of Agriculture which was formed in 1894. In 1898 the Department of Agriculture was established and absorbed the staff of the Bureau. Up to this time, some seventy years after the first settlement, agriculture in Western Australia had made little progress. The area of cleared arable land was less than 1 per cent of the present area. Superphosphate had not been used on Western Australian farms and wheat varieties suitable for the drier districts to the east of Northam were not then available. There was little comprehension of the many problems associated with land development and not much public appreciation of the part that science might play in solving them.

From small beginnings the Department's responsibilities and activities extended as agriculture developed. In the first quarter of a century of its existence, expansion and consolidation of farming in the wheat belt overshadowed other activities. That was only natural, as the acreage of wheat for grain expanded from 200,000 in 1905 to nearly 4 million acres in 1930, and for much of that time the State's development was synonymous with wheat belt expansion.

### State Farms and Research Stations

Perhaps the most important work in the Department's first ten or fifteen years was that concerned with the establishment of experiment farms, or 'State farms' as they were at first called. The first of these had its origin in plots which were established at Hamel in 1896. Valuable work was carried on at this centre for nearly twenty years in connection with the growing of potatoes, fruit, cereals, hops, fodder crops and pasture, and some success was achieved with wheat breeding.

Government farms were opened at Narrogin in 1901 and at Nabawa, twenty-five miles north of Geraldton, in 1902. In 1907 a farm at Nangeenan, near Merredin, was taken over from the Lands Department and is now the Merredin Research Station. In the same year a farm was established in the South-West at Brunswick in order to provide object lessons in dairying, as it was felt that there were great possibilities of expanding the dairying industry. After functioning for several years this farm was closed and the land was subsequently used for closer settlement purposes.

In 1911 a change was made in the policy of the government farms in the wheat belt and their character changed from 'experimental' to 'experiment' farms and ultimately to 'research stations'. Instead of being conducted mainly with the object of producing revenue they were to be used primarily for collecting information concerning local conditions that would be of value to the district. In addition, wheat, oats and barley were bred and pure pedigree seed produced. It would be difficult to over-estimate the subsequent value of the farms in this new role, which is still an important function although the emphasis has now changed to complex experiments which are of value to the study of farms as economic units. In later years more research stations were established and they now number twenty-two.

Research stations at Nabawa, Badgingarra, Wongan Hills, Merredin, Beverley, Mount Barker, Newdegate, Salmon Gums and Esperance deal with agriculture in the cereal-growing and sheep-raising districts and stations at Bramley (though dealing mainly with beef cattle), Denmark and Wokalup serve the dairying districts. Vegetable research stations are situated at Medina and Manjimup, a pig research unit has been established at the Medina station and beef cattle research is taking place at the Northam Research

Station. The poultry industry is served by a station at Herdsman Lake. A viticultural research station has been established at Upper Swan and a horticultural research station at Stoneville in the Darling Range to the east of Perth.

The Kimberley Research Station, operated in conjunction with the Commonwealth Scientific and Industrial Research Organization, is concerned with problems of irrigation in relation to agriculture in the tropics, with particular reference to the agricultural settlement now taking place on the Ord River. The Fitzroy Pastoral Research Station in West Kimberley studies problems of the beef cattle industry while at Abydos, near Port Hedland, regeneration of overgrazed pastoral country and a study of sheep breeding problems are the main concerns. At the Gascoyne Research Station at Carnarvon, problems of growing tropical fruits and winter vegetables, and pastoral problems in the area are being investigated.

### Advisory Services

Extension work is perhaps the Department's most important function and has exercised a powerful influence in publicising and accelerating the adoption of better farming methods. It is difficult to assess the results of any educational undertaking in terms of money, but the desirability of having a well-informed farming community, receptive to new ideas, is obvious. Although the best method of taking advice to farmers is for the technical officer to visit farms for discussion with the farmer on his own property, this is unfortunately not always possible as an officer may have between 500 and 1,000 farms in his district. Individual visits often have to be restricted to cases where a specific request has been made or where some urgent action is required.

Extension officers support the formation of farmers' organisations and attend meetings and field days where talks can be given to groups of farmers. Organised group discussions on major problems such as farm management are now a particular feature. It is estimated that in the past year approximately 8,000 farmers attended nearly 160 field days with which the Department was associated. Field experiments, both at the stations and on farmers' properties, form an excellent basis for demonstrations and talks. The various competitions in which extension officers act as judges provide another means of bringing farmers together for discussion. These competitions are generally concerned with crops and pastures but may include other types such as those conducted by Junior Farmers' Clubs for show exhibits and for debates. Extensive use is made of the radio and between 200 and 300 broadcasts are given by departmental officers each year. In addition to a weekly press service a series of television programmes is also prepared. The Department produces several publications including a quarterly *Journal of Agriculture*, which has a circulation of about 20,000, a special quarterly publication for dairy farmers and bulletins covering a wide range of subjects.

Advisory work is not concentrated in a single Division but is carried out by several Divisions and Branches of the Department. In recent years to provide local services for farmers, groups of officers have been stationed at Albany, Armadale, Bridgetown, Bunbury, Busselton, Carnarvon, Denmark, Derby, Esperance, Fremantle, Geraldton, Harvey, Jerramungup, Kalamunda, Kalgoorlie, Katanning, Kelmscott, Kununurra, Lake Grace, Manjimup, Margaret River, Merredin, Midland, Moora, Narrogin, Northam, Three Springs, Wyndham and at the Kimberley Research Station.

### Research Activities

In the field of investigation and research, problems which have been dealt with would comprise a lengthy list and only a few of the more important can be mentioned here. The value to the State of cereal-breeding activities is well known. Cereal varieties produced by the Department have increased the income of farmers by many millions of dollars over the years in which they have been grown. The introduction of new plant species and varieties, the evaluation of their suitability for local conditions and the determination of rotations for improving yields and maintaining soil fertility are important features of the work in cereal-growing districts.

Research into plant diseases and deficiencies forms another important section of the Department's investigational work. Considerable success has been achieved in the recognition and remedying of deficiencies of trace elements in soils, notably of copper, zinc and molybdenum. As a result of this work, fertilisers containing trace elements have been applied in recent years to extensive areas of the State's farming land. These investigations, together with allied work on superphosphate and sulphur and the establishment of subterranean clover pastures, constitute the technical factors which have made possible the rapid post-war expansion of light land development.

In the pastoral areas of the North-West the sheep-carrying capacity of large tracts of country has been seriously reduced by drought and overgrazing. Recent work by officers of the Department has shown that much of this country can be reclaimed by adopting systems of grazing management different from those employed in the past.

Nutritional disorders and diseases of farm animals cause considerable loss to farmers and pastoralists. Some of the Department's most notable successes have been achieved when dealing with problems in this field, which include enzootic ataxia, enterotoxaemia, toxic paralysis, clover disease in sheep, copper and cobalt deficiencies in cattle, contagious pleuro-pneumonia, Kimberley horse disease, plant poisoning of stock and infertility in dairy cows. Problems of sheep infertility, of lupinosis, brucellosis in sheep and in beef herds in the South-West and of mastitis in dairy cows are among investigations at present in progress.

A soil conservation service was established in the Department in 1947. Since then a great deal of information about the incidence and nature of erosion has been collected and many farmers have been assisted with their erosion problems. Considerable attention has also been given to the salt-land problem in the agricultural districts.

In somewhat more restricted fields the development of nematode resistant rootstocks and the use of a hormone spray instead of cincturing, for currant vines, are noteworthy changes in agricultural practice resulting from investigations by the Department. The selection of the rust-resistant runner bean variety, 'Westralia', has greatly reduced one of the hazards with which the bean grower has to contend.

### **Agriculture Protection**

For the control, prevention and eradication of noxious weeds and vermin, there is an Agriculture Protection Board which operates in collaboration with the Department of Agriculture.

The Board, which was established in 1951 following recommendations by a Royal Commission, is constituted under the provisions of the *Agriculture Protection Board Act, 1950-1970*, and comprises the Director of Agriculture or his deputy, as Chairman; the Chief Vermin Control Officer; an officer of the State Treasury; two representatives of the agricultural industry; one representative of the pastoral industry; and five representatives of local government authorities.

The income of the Board consists of appropriations from the Consolidated Revenue Fund and other moneys as prescribed by the Agriculture Protection Board Act.

For the purposes of the Agriculture Protection Board Act, the term 'noxious weeds' means those plants which are so proclaimed or declared under the *Noxious Weeds Act, 1950-1972*. 'Vermin' means any animal, bird or insect proclaimed to be vermin as provided by the *Vermin Act, 1918-1971*, and includes rabbits, foxes, dingoes, sparrows, emus, starlings and grasshoppers.

The Board formulates policies for the control, prevention and eradication of noxious weeds and vermin, advises on methods, directs and assists in general operations, provides services to help local government authorities and landholders in destruction work and conducts scientific research and investigations for the improvement of control techniques and policies. Control work extends to Crown lands, including reserves, for the benefit of adjoining landholders.

Improvements in the control of both noxious weeds and vermin have resulted from the activities of the Agriculture Protection Board and there have been some notable successes, including a great reduction in rabbit numbers effected by the use of myxomatosis virus and by organised drives for their destruction, mainly by poisoning.

### Other Services

The Department operates certain services which assist the producer to increase his efficiency. Probably the best known is the production of pure pedigree varieties of seed wheat, oats and barley. These are of value to the cereal grower, who is able to obtain his requirements at moderate cost. Sponsoring and supervising the production of approved lines of seed, notably potatoes and beans, has led to the wide use of these specialised lines with a resulting increased yield, and certification of pure lines of pasture seed gives farmers a guarantee of quality in the seed they buy. Assistance to dairy farmers to form herd-testing units, thus enabling them to gauge the performance of their herds, is another service of similar nature. Assistance and technical advice is given to farmers concerned with the installation of irrigation schemes and the preparation of land for irrigation.

The producers who benefit from the services mentioned in this section pay something for them, but not necessarily the full amount of the cost of providing these services.

### Administration of Acts

The Department of Agriculture is responsible for administering some fifty Acts concerning a wide range of subjects. Some of the more important relate to animal and plant diseases and insect pests, industry trust funds, soil conservation, vermin control, marketing of agricultural products and registration of feeding stuffs, fertilisers and stock brands.

### ARTIFICIAL BREEDING BOARD

The Artificial Breeding Board was established under the *Artificial Breeding Board Act, 1965* which came into operation by proclamation on 16 December 1966. The Act provides that the board shall consist of a chairman, vice-chairman and three other members, of whom one shall be a veterinary surgeon. Responsibility for promotion of artificial breeding of stock has been placed in the hands of the Board which, in effect, assumed control of artificial insemination work established in 1956 by the Department of Agriculture at the Wokalup Research Station.

Subsequent developments have been the importation of bovine semen of principal beef and dairy breeds from overseas; wide extension of serviced areas; organisation of individual beef artificial insemination operations in other areas; trial freeze branding programmes; and co-ordination of practices with parallel organisations through the Australian Association of Artificial Breeders. The total of first inseminations in 1971 showed an increase of 76·5 per cent over the number in 1968, the first full year of operation.

### FARM MANAGEMENT SERVICE LABORATORY

The University of Western Australia, by resolution of the Senate, approved the establishment of the Farm Management Service Laboratory within the University in 1966. The aims of the Laboratory are to develop concepts and services in management accounting, planning and animal breeding which are specially suited to the needs of farmers; to make these developments available to farmers; and to use information processed by the Laboratory for teaching and research within the Institute of Agriculture at the University of Western Australia.

The Laboratory hires its own staff and computer time, and pays its own operating expenses. Fees are charged to cover costs, though initially the Laboratory drew on capital grants made to it by various firms and institutions through the John Thomson Agricultural Economics Centre at the Institute of Agriculture.

Services provided by the Laboratory include computer techniques for planning farm business and solving farm problems. A set of programmes has been developed to enable farmers to breed at least cost for maximum genetic improvement of economically important traits in sheep flocks and pig and beef herds.

## TRAPPING

Although trapping has been carried on from the first years of settlement, it has never been an important industry. In 1970-71 the recorded gross value was only \$834,000 but reliable and complete information is difficult to obtain and this amount could therefore be deficient.

Kangaroos have been destroyed in great numbers from the earliest days, the principal reason for the organised destruction being the damage done to pastures and fencing. As early as 1849 the export of kangaroo skins for the year was no less than 12,387. Skins are still exported and some are used in local factories while kangaroo meat is used as pet food.

The earliest recorded export of rabbit skins relates to the year 1900 and the meat and skins of these animals have been a source of income to trappers ever since. In an attempt to reduce the damage done to crops and pastures, various methods of control have been adopted and since the second World War an intensive campaign, using myxomatosis virus, poisons and warren ripping, has met with considerable success. As a result, the quantity of rabbit meat produced and the number of skins exported and treated locally have declined greatly and are now insignificant.

Wild goats are slaughtered and the meat is exported.

The skins of animals other than marsupials and rabbits, together with exports of Western Australian fauna, are taken into account in the value of the trapping industry (see tables on page 338) but these are not significant.

## FORESTRY

### The Prime Indigenous Forests

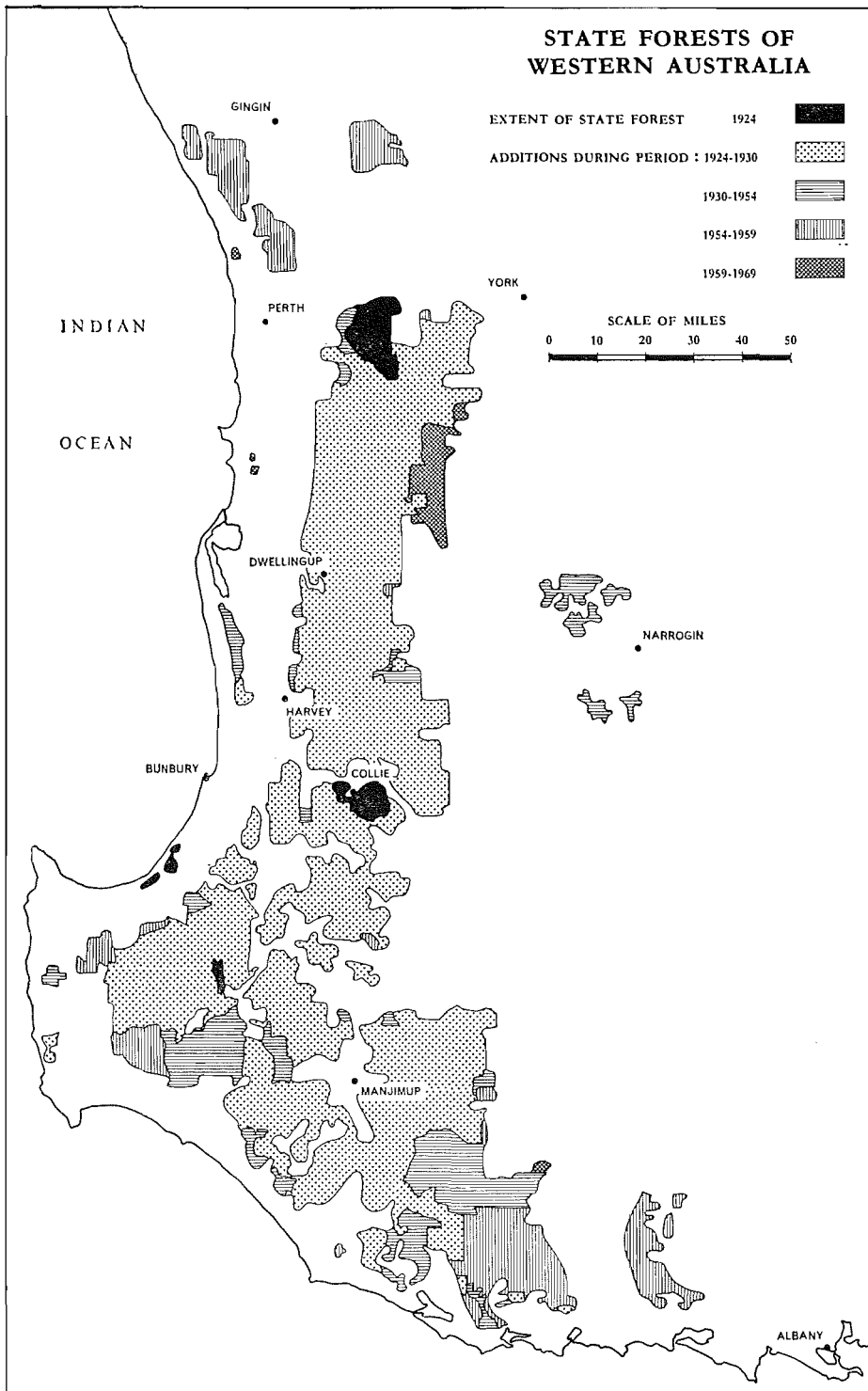
Although the prime indigenous forests of Western Australia cover only a small percentage of the area of the State, they are of considerable economic importance. This is not only on account of the durability, strength and general-purpose nature of their hardwood timbers, but also because of their occurrence on the water catchment areas in the high-rainfall and closely-populated section of the State. Being easy to regenerate after cutting, they form a natural and effective protection against soil erosion, and provide for the increasing public demand for forest recreation. More than 4.5 million acres have been permanently dedicated as State Forests and approximately 316,000 acres of forest land are held as Timber Reserves under the Forests Act and the Land Act.

Jarrah (*Eucalyptus marginata*) is the State's principal timber and the prime forest covers over 3 million acres of the State Forests. Karri (*E. diversicolor*) is next in importance and is distributed over some 800,000 acres but only about 20 per cent of it is in pure stands. Wandoo (*E. redunca* var. *elata*) accounts for a smaller portion of the dedicated area and Tuart (*E. gomphocephala*), another valuable timber, has a restricted area of about 6,000 acres. Blackbutt (*E. patens*) occurs in patches throughout the jarrah and karri forests and is an important milling timber with properties and uses similar to jarrah. Marri (*E. calophylla*), the most widespread of the commercial eucalypts, is noted as a pole timber and is now being sawn in increasing quantities for building scantling. Of greatest importance, however, is the potential of marri as a resource for a wood chip or wood pulp industry.

Other eucalypts and many trees of different genera occur within the prime forest belt but they are not of major economic importance. The main distribution of the prime forests, which are practically confined to the south-western portion of the State, is shown on the accompanying map.

### The Inland Forests

Beyond the area of prime forest is an inland sclerophyllous woodland, within which are a number of eucalypts (both tree and mallee form), as well as several types of *Acacia*, such as the wattles and mulgas, tea tree (*Melaleuca spp.*) and casuarinas. Sandalwood



(*Santalum spicatum*), indigenous to the wheat belt and semi-arid areas of the State, is still exported to Asian countries but is now obtained only from the semi-arid regions.

While none of the inland woodland can be classed as suitable for sawmilling in the ordinary sense, it forms an important source of timber for mining and agricultural purposes. During recent years, soil conservation in the regions of low rainfall has received increasing attention and the importance of controlling clearing, grazing and firewood cutting has been recognised. The Forests Department maintains a staff to exercise these controls and to advise on tree planting.

### Forestry Administration

Scientific forestry was given considerable impetus in Western Australia with the passing of the Forests Act in 1918. Extensive cutting over the previous fifty years had seriously depleted the State's timber resources and adequate provision had not been made for protection and regeneration. Under the Act, however, wide powers are conferred on the Forests Department, which is granted nine-tenths of the net annual government revenue from forestry sources. The sum received, together with various other grants, is used for regeneration, fire control and associated purposes.

The forests are now managed on a long-range working plan to ensure continuity of the industry, trees being approved for cutting and marked accordingly by trained foresters, who work under the direction of the Conservator of Forests and closely control both the indigenous forest and the mallet and pine plantations. The future productivity of the forests is also safeguarded by ensuring that cutting is carried out in such a way as to protect immature growth and to encourage natural regeneration, which is a very important feature of the Department's policy.

Brown Mallet (*Eucalyptus astringens*), the bark of which has a high tannin content, once covered large areas in the wandoo forest belt but was practically exterminated by clearing for farms and by excessive exploitation. Regenerated areas and plantations of mallet now total 19,111 acres and it is unlikely that this total area will increase.

Plantation methods are being employed to grow pines, principally *Pinus pinaster* and *Pinus radiata*, as the State has no indigenous softwoods of commercial significance. Financial assistance granted by the Commonwealth in terms of the *Softwood Forestry Agreements Act* 1967 has enabled the State to increase its planting rate to an average 6,000 acres per annum. It was hoped to lift the rate to 8,000 acres a year but lack of finance has prevented this. Further financial assistance has been granted by the Commonwealth under the *Softwood Forestry Agreements Act* 1972 to cover a second five-year programme of softwood planting over the period ending 30 June 1976. Thirteen plantations, with a planted area (including trial plots) of 78,603 acres have been established to 31 December 1971, and it is planned to provide 250,000 acres by the turn of the century. Much of the land selected for pine planting is of limited value for agriculture but when used for pines it constitutes a valuable long-term investment, with the prospective development of industries for the manufacture of paper, wallboard and similar products.

Because of the hot, dry summers experienced in most of the areas covered by State Forests, there is a considerable risk of damage by fire and intensive precautions are taken by the Department to minimise this danger. Look-out towers, provided with radio or telephone communication, are manned at strategic points and prescribed burning is carried out annually during spring and, to a lesser extent, in autumn. In 1972, 592,111 acres were burnt in this way. About half the burning is carried out by dropping incendiaries from a low-flying aircraft. Restrictions are placed on all burning operations by farmers and other persons when the fire hazard is high and at such times warnings are issued emphasising the danger.

In association with the system of cutting control, various royalties, licence and permit fees are collected as part of the Consolidated Revenue of the State.

The protection of native flora is also vested with the Forests Department which administers the *Native Flora Protection Act, 1935-1938*. The main provision of the Act is the authority given to the Governor of Western Australia to declare by proclamation that any or all wildflowers or native plants are protected in any specified part of the State.

Penalties are provided under the Act for picking protected wildflowers or plants or for selling or offering them for sale. The Act, however, empowers the Minister for Forests to issue licences to pick protected wildflowers or native plants for scientific or other purposes approved by the Minister.

Prior to 1963, only certain wildflowers and native plants were declared protected in various parts of the State. However, owing to extensive land-clearing operations and the consequent rapid decline in areas of wildflowers, it was decided in 1963 to issue a proclamation protecting all wildflowers and native plants on all Crown lands, State Forests, lands reserved for public purposes, and every road within the South-West and Eucla Land Divisions and on all flora and fauna reserves throughout the rest of the State. Further proclamations have since been issued protecting specific wildflowers and plants throughout Western Australia.

Policing of the Act is carried out by officers of the Forests Department and Honorary Inspectors appointed under the *Native Flora Protection Act, 1935-1938*. Notices prohibiting the picking of wildflowers are supplied by the Forests Department to Shire Councils for erection on road verges.

### Principal Forest Products

Sawn timber from jarrah and karri is the principal form of forest production, but there has been a rapid increase in the local use of logs for plywood manufacture during recent years. Karri and locally-grown pine logs are used for this purpose, together with imported logs. Small-size thinnings from coastal plantations of *Pinus pinaster*, supplemented by some *Pinus radiata* thinnings from southern plantations and waste cores and off-cuts from plywood peeling, are used in the manufacture of particle board. This is becoming an increasingly important product and the volume of chipwood logs used in 1971-72 was 1,344,040 cubic feet.

In addition to these major products, the State's forest wealth includes sandalwood for export and as a source of sandalwood oil, firewood for general purposes, and various seeds and plants for propagation both in Australia and abroad. Wandoo and jarrah are used as a source of charcoal for the high-grade charcoal pig-iron produced at Wundowie. The karri, wandoo, marri and some inland species are important nectar producers for apiarists, who move their bees to various forest sites in following the nectar flow.

The following table gives details of sawn and round timber production from 1967-68 to 1971-72. Production of sawn timber has fluctuated over the ten years to 1971-72, reaching a maximum of 211.7 million superficial feet in 1967-68, with a minimum of 172.5 million superficial feet in 1971-72. In the same period the output of round timber, which consists mainly of mining timber, piles, poles, fencing posts and rails, ranged between a maximum of 37.9 million superficial feet in 1968-69 and a minimum in 1971-72 of 18.6 million superficial feet.

TIMBER PRODUCTION (a)

Particulars				1967-68	1968-69	1969-70	1970-71	1971-72
Timber—Sawn	....	....	'000 sup. feet	211,726	188,294	190,845	190,265	172,474
Timber—Round	....	....	'000 sup. feet	24,448	37,899	25,583	21,698	18,551

(a) From local logs and includes railway sleepers and plywood veneers.

Sawmilling is dealt with in greater detail under *Secondary Industry* in Part 2 of this Chapter.

In 1971-72 exports of railway sleepers totalled 19.7 million superficial feet, of which 4.0 million went to other Australian States and 15.7 million to overseas markets, mainly the United Kingdom. In the same year 19.0 million superficial feet of other rough, sawn or dressed timber were exported to other Australian States, and 4.2 million shipped overseas, the principal markets being the United Kingdom, New Zealand and South Africa.

## FISHERIES (INCLUDING WHALING AND PEARLING)

The fishing industry in Western Australia consists of three distinct activities, the catching of edible species, whaling and pearl-shell production. In addition, pearl culture has been successfully established in recent years.

## General Fisheries

Since the end of the second World War, rock lobsters have become the most important item of production of that section of the industry which is concerned with the catching of edible species. Prior to the war there was a small local market for fresh rock lobsters, but in 1941 production was stimulated by canning for the armed forces. Although canning continued until 1950, it had become far less important by 1947 than another development, the freezing of rock lobster tails for export, mainly to the United States of America. The overseas demand, which developed rapidly in post-war years, gave great impetus to the industry and the take increased greatly after 1947 to a record production of 22·0 million lb in 1967-68 valued at \$16·9 million. Although the catch for 1970-71 decreased to 17·9 million lb, the value of \$18·0 million was the highest ever recorded. Overseas and interstate exports of rock lobster tails in 1970-71 totalled 7·0 million lb with an f.o.b. value of \$19·4 million.

The most important commercial species of rock lobsters in Western Australian waters is *Panulirus cygnus*, which is fished off the south-west coast between Murchison River and Bunbury. The principal localities around which rock lobsters are caught are the Abrolhos Islands, Geraldton, Dongara, Beagle Island, Green Head, Jurien Bay, Cervantes, Lancelin, Ledge Point and Fremantle. The industry is protected from overfishing by such measures as the declaration of closed seasons; the proclamation of fishing zones; the prohibition of the taking of lobsters of less than a prescribed size or of female rock lobsters having berry (*i.e.* eggs) attached; requiring that every rock lobster pot shall have an escape gap of specified dimensions; the granting only in special circumstances of new licences for boats for rock lobster-fishing; and limiting the number of pots that a boat may carry or use at any one time. The catch is processed either on specially equipped freezer boats or at shore stations licensed under the *Fisheries Act, 1905-1971* as processing establishments.

The large catches of Australian salmon (*Arripis trutta*), which school in the bays on the south and lower south-western coasts, yield a large proportion of the production of inshore and beach fishing and are used almost exclusively for canning. The remainder of the catch from this type of fishing comprises chiefly tailor (*Pomatomus saltator*), sea herring or ruff (*Arripis georgianus*), western sand whiting (*Sillago schomburgkii*), sea mullet (*Mugil cephalus*) and trevally or skipjack (*Usacaranx georgianus*). This is sold mainly as wet fish on the local market, but large quantities of sea herring are canned and there are some exports, principally of whiting, to the other Australian States.

The coastal waters northward from the mouth of the Murchison River to North West Cape and Exmouth Gulf are the source of several species of commercial importance. Snapper (*Chrysophrys unicolor*) are caught between the Murchison River and North West Cape, during the northern schooling season from May to August. Cod and Spanish mackerel, though in smaller quantities, are also caught between the Murchison River and North West Cape. At Shark Bay a prawn-fishing industry has been successfully established, the catch being processed at Carnarvon. The species caught are the western king prawn (*Penaeus latisulcatus*) and the brown tiger prawn (*P. esculentus*). A prawn fishery has also been established at Exmouth Gulf, the principal species caught being the brown tiger prawn and the western king prawn. Quantities of endeavour prawn (*Metapanaeus endeavouri*) and banana prawn (*P. merguensis*) are also caught. The catch is processed at Learmonth and on freezer boats. As a conservation measure the number of fishing boats licensed to operate has been limited to thirty-two at Shark Bay and twenty-two at Exmouth Gulf. From a catch of 238,937 lb in 1961-62, the State production of prawns has increased significantly and in 1970-71 was 6,179,000 lb. Production is expected to increase still further due to the establishment of commercial prawn fishing in the Nickol

Bay area, near Roebourne, and because of promising experimental trawling being carried out in other areas along the north coast.

The first fishing grounds to be exploited were the estuaries and rivers and, although they are not now as important as other grounds, they still provide substantial quantities of fish of a fairly wide variety. The principal species are cobbler (*Cnidogobius macrocephalus*) and yellow-eye mullet (*Aldrichetta forsteri*), most of which are caught in Peel Inlet and the Harvey and Swan estuaries. Other species include garfish (*Hemirhamphus australis*), Perth herring (*Fluvialosa vlaminghi*), sea mullet, tailor, sand whiting, King George whiting (*Sillaginodes punctatus*), and pilchard (*Sardinops neopilchardus*). Crabs (*Portunus pelagicus*), green-tail prawns (*Metapenaeus dalli*) and western king prawns are also caught commercially in these waters.

The principal species of edible fish are shown in the following table with the quantities and value of each species caught in the years 1968-69 to 1970-71.

FISH, CRUSTACEANS AND MOLLUSCS: CATCH AND VALUE (a)

Species—Common name	Quantity (b) ('000 lb)			Value (c) (\$'000)		
	1968-69	1969-70	1970-71	1968-69	1969-70	1970-71
<b>Fish—</b>						
Anchovy (Whitebait) ....	76	114	176	7.6	17.1	15.8
Bream, Black ....	23	10	18	4.1	2.2	4.1
Bream, Buffalo ....	26	60	55	3.2	3.0	2.7
Bream, Western Yellowfin ....	22	18	28	1.3	2.4	3.3
Cobbler ....	158	234	383	21.3	37.7	53.6
Cod ....	38	42	43	6.2	5.1	5.8
Emperor (North-West Snapper) ....	9	54	60	1.2	7.5	8.8
Emperor, Red ....	....	(d)	38	....	(e)	6.4
Flathead, Dusky ....	17	15	17	2.0	1.8	1.7
Garfish, Sea ....	37	44	60	4.3	6.1	8.3
Groper, Blue, Brown or Red ....	21	33	54	3.5	4.2	8.1
Herring, Perth ....	492	183	367	37.0	12.8	36.7
Jewfish, Westralian ....	226	301	291	84.9	105.4	116.1
Leatherjacket ....	12	23	27	1.5	2.9	4.0
Mackerel, Scaly ....	104	60	58	5.9	3.6	8.2
Mackerel, Spanish ....	165	131	96	28.6	21.0	18.2
Mullet, Sea ....	689	782	692	80.9	78.2	89.9
Mullet, Yellow-eye ....	577	764	673	51.0	61.2	60.6
Mulloway (River Kingfish) ....	26	13	19	1.8	1.0	1.4
Perch, Giant (Barramundi) ....	16	22	31	2.2	1.2	3.5
Pilchard ....	244	309	439	22.6	27.8	57.0
Ruff (Sea Herring) ....	1,363	1,353	1,615	47.3	47.3	64.6
Salmon, Australian ....	5,576	4,713	3,628	204.7	188.5	174.2
Samson Fish (Sea Kingfish) ....	101	100	61	12.6	9.8	7.7
Shark ....	763	826	1,034	92.0	104.0	149.6
Snapper ....	313	455	423	53.2	61.9	67.7
Tailor ....	80	112	102	9.7	10.1	15.3
Trevally (Skipjack) ....	46	45	24	4.7	4.1	4.2
Tuna ....	714	1,122	1,229	35.9	78.5	86.1
Whiting, King George ....	73	131	154	21.9	23.5	38.4
Whiting, Western Sand ....	309	425	343	57.6	76.6	65.2
Other species ....	108	98	104	11.6	12.4	12.5
<b>Total Fish</b> ....	<b>12,425</b>	<b>12,592</b>	<b>12,339</b>	<b>922.3</b>	<b>1,018.8</b>	<b>1,199.7</b>
<b>Crustaceans—</b>						
Crabs ....	61	68	107	9.9	17.8	48.1
Prawns—Banana ....	187	260	321	69.5	88.4	144.4
Brown tiger ....	1,625	2,942	2,570	783.8	1,529.6	1,310.8
Endeavour ....	81	258	597	31.8	80.0	191.1
Green-tail ....	69	157	53	34.5	42.5	21.2
Western king ....	1,862	1,875	2,637	882.5	956.1	1,318.7
<b>Total Prawns</b> ....	<b>3,823</b>	<b>5,492</b>	<b>6,179</b>	<b>1,802.1</b>	<b>2,696.6</b>	<b>2,986.3</b>
Rock lobsters ....	18,030	15,335	17,861	17,801.2	12,114.9	18,040.0
<b>Total Crustaceans</b> ....	<b>21,914</b>	<b>20,896</b>	<b>24,147</b>	<b>19,613.3</b>	<b>14,829.3</b>	<b>21,074.4</b>
<b>Molluscs—</b>						
Abalone ....	(f)	38	266	(f)	7.5	69.7
Scallops ....	267	2,862	3,897	21.3	200.4	214.1
Other molluscs ....	40	39	28	9.9	6.4	5.3
<b>Total Molluscs</b> ....	<b>307</b>	<b>2,939</b>	<b>4,191</b>	<b>31.2</b>	<b>214.2</b>	<b>289.1</b>
<b>TOTAL, WESTERN AUSTRALIA</b> ....	<b>....</b>	<b>....</b>	<b>....</b>	<b>20,566.6</b>	<b>16,062.3</b>	<b>22,563.2</b>

(a) Excludes aquatic reptiles, details of which are not available for publication. (b) Live (whole) weight. (c) Gross value paid to fishermen. (d) Less than 500 lb. (e) Less than \$50. (f) Not available for publication; included in 'Other molluscs'.

There are no indigenous inland or freshwater fish of commercial value. A relatively large crustacean, the marron (*Cherax tenuimanus*), occurs in the streams of the lower South-West and some success has been achieved in stocking farm dams with this species. Proposals to farm artificially-reared stocks are being investigated. Brown trout, rainbow trout and English perch have been introduced into the streams of the southern districts.

The Western Australian Department of Fisheries and Fauna, in association with the Commonwealth Scientific and Industrial Research Organization and other State and Commonwealth authorities, is undertaking research on rock lobsters, prawns, whiting, scallops, abalone, tuna and Australian salmon in Western Australian marine waters. These organisations are also involved in research into problems relating to estuaries and freshwaters, including examination of the effects of dredging and damming, the introduction of trout and marron into dams and freshwater streams, the pollution of inland lakes, and the tourist and recreational potential of the estuaries and freshwaters of the State. A special group of Fisheries Department officers is investigating the potential for commercial exploitation of selected species of fish from areas which, to date, have not been commercially exploited.

A marine research centre has been built at Waterman, about fourteen miles north of Fremantle, for the Department of Fisheries and Fauna. It incorporates eleven separate laboratories and a large room housing several aquariums with circulating water, for experiments and studies mainly on rock lobster. Fisheries research workers from the Department of Fisheries and Fauna, the Commonwealth Scientific and Industrial Research Organization and the University of Western Australia are employed at the centre.

A summary of the principal statistics of the fishing industry is given in the following table.

#### GENERAL FISHERIES

At 31 December—	Boats licensed	Value of boats and equipment	Fishermen licensed (a)	Year	Production			
					Rock lobsters		Other fish (b)	
					Quantity (c)	Value	Quantity (d)	Value
	number	\$'000	number		'000 lb	\$'000	'000 lb	\$'000
1966 ....	1,475	9,707	2,350	1966-67 ....	18,943	11,344	15,949	1,013
1967 ....	1,487	11,413	2,724	1967-68 ....	22,024	16,863	16,747	1,100
1968 ....	1,412	14,603	2,785	1968-69 ....	18,030	17,801	12,425	922
1969 ....	1,450	18,243	3,005	1969-70 ....	15,335	12,115	12,592	1,019
1970 ....	1,456	19,460	2,895	1970-71 ....	17,861	18,040	12,339	1,200

(a) Comprises employees and working proprietors.  
weight of whole rock lobsters.

(b) Excludes crustaceans, edible molluscs and turtles.  
(c) Live weight of whole rock lobsters.

(d) Estimated live weight.

The next table shows, for 1970-71, the quantity of fish and crustaceans caught, according to the method used.

#### FISH AND CRUSTACEANS: CATCH BY METHOD, 1970-71 (<sup>000</sup> lb)

Particulars	Haul net and beach seining	Hand lining (a)	Trawling	Pot fishing for rock lobsters	Other methods	Total
Fish ....	7,319	87	....	....	4,933	12,339
Crabs ....	73	....	....	....	34	107
Prawns ....	43	....	6,040	....	96	6,179
Rock lobsters ....	....	....	....	17,859	2	17,861
Total ....	7,435	87	6,040	17,859	5,066	36,486

(a) Snapper only. Catch of other species by hand lining is included in 'Other methods'.

#### Whaling

Whaling has been conducted along the Western Australian coast from the first years of settlement and whale oil and whale bone were among the earliest exports from the Colony. Activity since then has fluctuated widely and at times ceased altogether. The

latest large-scale revival of the industry began in 1949, when a station at Point Cloates on the north-west coast was reopened after a lapse of more than twenty years. A treatment plant was established by the Australian Whaling Commission at Babbage Island, near Carnarvon, in 1951 and a plant at Frenchman Bay near Albany was enlarged in the following year. In 1956, the company operating from Point Cloates purchased the Australian Whaling Commission's station at Babbage Island and transferred its activities to that base.

During the 1963 season the two whaling companies operating in Western Australia took only eighty-seven humpback whales, compared with a quota of 550 allocated under the procedure laid down by the International Whaling Commission. At a meeting held in London in July 1963 the Commission decided that more stringent measures should be adopted to prevent further depletion of numbers. Accordingly it imposed a total ban on the taking of humpback whales for an indefinite period in all waters of the Southern Hemisphere. The company operating from Carnarvon, which relied mainly on the taking of humpbacks, ceased whaling activities at its Carnarvon base in August 1963.

Before the 1962 season the whales taken were predominantly humpbacks. The only station now operating is at Frenchman Bay where sperm whaling has been carried on since 1955.

The figures in the following table have been derived from information provided by the Fisheries Branch of the Commonwealth Department of Primary Industry.

#### WHALING

Particulars	1967	1968	1969	1970	1971
Sperm whales taken .... No.	587	658	679	799	860
Oil produced (a) .... tons	3,738	3,912	*4,357	5,281	6,069

(a) 1 ton = 6 barrels (approximately).

\* Revised.

#### Pearl-shell Fishing and Pearl Culture

Pearl and pearl-shell fishing has been a valuable industry for many years, the main centre being Broome. The pearls obtained were once an important feature of production but the success of the industry now depends almost entirely on the shell produced and the price obtainable for it. Activities were suspended following the outbreak of war with Japan, when valuable luggers and equipment were lost. After the war recovery of the industry was slow because of a shortage of suitable boats and the difficulty in obtaining experienced divers. In 1953 the rate of progress improved when the services of trained Japanese divers again became available. By 1957 production of shell had reached the pre-war level of about 1,000 tons but due to the depressed state of the market it fell to 753 tons in 1958. Except for a slight recovery in 1960, production declined in each year from 1959 until 1964, when 138 tons of shell were raised. Due to the increased demand for shell for pearl culture, production then increased slightly and in 1971 was 172 tons.

#### PEARL AND PEARL-SHELL PRODUCTION

(Excluding Pearl Culture)

(Source: Department of Fisheries and Fauna)

Particulars	1967	1968	1969	1970	1971
Vessels operating—					
Number ....	14	13	12	11	11
Aggregate tonnage ....	332	319	296	259	297
Value (including equipment) .... \$	123,500	124,000	174,000	171,000	160,000
Number of persons engaged ....	132	119	107	122	107
Pearl-shell and pearls produced—					
Pearl shell—					
Quantity .... tons	221	212	246	212	172
Value .... \$	354,845	333,008	370,561	407,262	395,743
Value of pearls .... \$	4,200	1,050	336	6,037	1,400

In 1956 a licence was granted to a company to culture pearls at Kuri Bay in Brecknock Harbour, 130 miles north-east of Derby and the initial harvest of pearls was gathered in 1957. Licences have since been issued to two other companies and pearl culture farms have been established in Samson Inlet, Hiro Bay and Mura Bay and in King Sound and at Port Smith, south of Broome. During 1966 approximately 50,000 live shells were shipped from Western Australia to Papua, where they were used to establish the pearl culture industry at Fairfax Harbour. Further consignments followed in 1967, 1968 and 1969, when a total of 100,000 live shells were shipped. Figures in the previous table do not include details of culture pearl production.

## MINING

Mineral statistics presented in the following pages are derived principally from the annual census of mining conducted by the Bureau of Census and Statistics. Data from the census are supplemented where necessary by publishable information made available by the Western Australian Department of Mines. Up to and including 1968 the annual census related to the period January to December inclusive but commencing with the 1968-69 census the period was changed to the year ended 30 June. In the tables that follow, the minerals have been valued on an ex-mine basis (*i.e.* selling value less cost of transportation). For the year 1968-69 the Commonwealth Bureau of Census and Statistics conducted the annual census of mining as part of a programme of fully integrated economic censuses covering mining and manufacturing industries, and wholesale and retail trade. This was a major undertaking involving the development of new concepts, definitions and procedures. Brief definitions relevant to the censuses appear below. Further details relating to the integrated economic censuses and the concepts and methods adopted appear in the *Appendix* of the 1971 issue of the Year Book and in bulletins relating to the economic censuses issued by the Commonwealth Statistician, Canberra.

**NUMBER OF ESTABLISHMENTS.** The number of establishments which operated during any period of the year. These relate in general to a separate physical location predominantly engaged in mining. Numbers of separately-located administrative offices and ancillary units predominantly engaged in providing a service (*e.g.* administration, transport, storage) to mining establishments of the same enterprise are not included.

**PERSONS EMPLOYED.** Working proprietors at the end of June and employees on the pay-roll of the last pay-period in June, including those working at separately-located administrative offices and ancillary units in the State.

**SALARIES AND WAGES.** The salaries and wages of all employees, including those at separately-located administrative offices and ancillary units in the State. Amounts drawn by working proprietors are not included.

**SALES, TRANSFERS OUT AND OTHER OPERATING REVENUE.** Sales of goods whether produced by the establishment or not, plus transfers out of goods to other establishments of the same enterprise, plus all other operating revenue from outside the enterprise, such as commission, repair and service revenue. This excludes rents, leasing revenue, interest, royalties and receipts from the sale of fixed tangible assets.

**PURCHASES, TRANSFERS IN AND SELECTED EXPENSES.** Purchases of materials, fuel, power, stores, containers, etc. plus transfers in of goods from other establishments of the same enterprise, plus charges for commission and sub-contract work, repair and maintenance expenses, outward freight and cartage, motor vehicle running expenses and sales commission payments.

**VALUE ADDED.** Sales, transfers out and other operating revenue, plus increase (or less decrease) in the value of stocks, less purchases, transfers in and selected expenses.

The foregoing definitions are relevant to the next table which provides a summary of the principal statistics from the mining censuses of 1969-70 and 1970-71.

SUMMARY OF MINING OPERATIONS, BY INDUSTRY SUB-DIVISION  
1969-70 AND 1970-71 (a)

Item	Metallic minerals		Fuel minerals (b)		Construction materials		Other non-metallic minerals		Total mining	
	1969-70	1970-71	1969-70	1970-71	1969-70	1970-71	1969-70	1970-71	1969-70	1970-71
Number of establishments	No. 72	No. 71	No. 4	No. 5	No. 55	No. 48	No. 34	No. 35	No. 165	No. 159
Persons employed (c)—										
Males	7,158	8,264	707	692	424	570	410	506	8,699	10,032
Females	308	548	13	14	50	60	15	32	386	654
Total	7,466	8,812	720	706	474	630	425	538	9,085	10,686
Salaries and wages paid	\$'000 34,674	\$'000 44,387	\$'000 2,903	\$'000 3,247	\$'000 2,229	\$'000 3,023	\$'000 1,691	\$'000 2,937	\$'000 41,497	\$'000 53,593
Sales, transfers out and other operating revenue	327,808	462,087	53,408	42,772	10,452	12,334	5,990	9,914	397,658	527,107
Opening stocks	25,247	34,562	2,414	1,624	1,977	1,413	599	1,387	30,237	38,985
Closing stocks	33,381	38,880	1,624	2,205	2,701	2,042	1,387	2,099	39,093	45,225
Purchases, transfers in and selected expenses	112,950	133,918	3,031	2,587	5,428	5,637	3,703	4,762	125,112	146,904
Value added	222,992	332,488	49,587	40,766	5,748	7,326	3,075	5,864	281,402	386,444

(a) Preliminary data for 1969-70 and provisional estimates for 1970-71. Figures for 1969-70 have been revised since previous issue. (b) Comprises coal mining and crude petroleum including natural gas mining. (c) At 30 June; includes working proprietors.

The mining industry has been for many years of considerable significance in the Western Australian economy and it has recently increased in importance due to the exploitation of iron ore, nickel, oil and other minerals. The mineral resources of the State are extremely varied in character and are widely distributed geographically. Extensive exploratory work is being undertaken to evaluate the known deposits and also to locate other reserves of minerals. The geology of the State is described in Chapter II, Part 1—*Physical Features and Geology*, and reference is made there to the occurrence of mineral deposits.

The development of mining as a major industry in Western Australia began with the discovery of gold in the Kimberley in 1885, although some forty years earlier coal had been found at the Irwin River and copper and lead in the Northampton district. The impetus given to prospecting by the Kimberley finds led to other gold strikes between 1887 and 1891 and the rich discoveries at Coolgardie in 1892 and at Kalgoorlie in 1893.

Developments in recent years have led to a great increase in the value of mineral production. Vast deposits of iron ore in the State are being mined and the ore exported overseas and interstate or used by establishments located in Western Australia to produce iron ore pellets and pig iron. Nickel concentrates have also contributed considerably to the increase in the value of minerals. Crude oil is produced at Barrow Island and distribution of natural gas from fields at Dongara to domestic and industrial consumers in the State commenced in December 1971. Ilmenite and other mineral sands are being produced from deposits in the south-west of the State and bauxite mined from deposits in the Darling Range is being worked as a source of alumina.

Employment in the mining industry has fluctuated considerably over the years. Until recently the gold mining industry was the major employer of labour. However, owing to increasing costs of mining, the depletion of higher grade deposits and gold price restraints, the gold mining industry has declined. This decline, together with the exploitation in recent years of the vast deposits of iron ore, has resulted in the iron ore industry becoming the major employer of labour in the mining sector in Western Australia.

The mining laws of the State have been designed to encourage as well as to control activity in the industry. This policy and the experience of other countries were given due consideration in framing them and they are regarded as equitable and offering all reasonable incentives to mining development. The various tenures are described in detail in Chapter VII, Part 1 of the *Western Australian Year Book*, No. 8—1969, No. 6—1967 and earlier issues.

The following table gives details of mineral production during the years 1968-69, 1969-70 and 1970-71, valued on an ex-mine basis.

## MINERAL PRODUCTION

Item	1968-69		1969-70		1970-71 (a)	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$'000	tons	\$'000	tons	\$'000
Asbestos .....	1,084	16	27	1	57	2
Barytes .....	2,075,306	(b)	419	6	520	6
Bauxite .....	10	5	2,860,679	(b)	4,140,243	(b)
Beryl .....	1,192,853	891	1,331,013	*999	23	7
Clays—all kinds (c) .....	1,102,621	4,853	1,159,101	5,407	1,053,441	949
Coal .....					1,171,398	5,653
Construction materials—						
Building and monumental stone .....	184,643	406	173,773	357	106,828	281
Crushed and broken stone .....	3,747,597	9,724	3,428,213	10,324	4,186,028	10,144
Crushed and broken limestone .....	867,268	363	851,933	298	1,048,158	484
Copper ore for fertiliser .....	940	113	*627	*74	92	13
Copper concentrate .....	3,353	647	*3,442	*798	2,583	420
Crude oil (d) .....	11,649,067	33,549	15,582,841	44,879	16,534,837	35,570
Felspar .....	579	9	604	9	457	7
Gold bullion (e) .....	668,618	18,935	542,139	15,760	467,189	13,872
Gypsum .....	107,854	315	89,281	*238	197,580	597
Iron ore .....	23,345,000	140,075	*34,029,989	195,074	45,684,080	279,478
Lead concentrate .....	4,429	150	271	35	186	18
Limestone for industrial purposes (f) .....	831,707	587	1,511,498	*1,071	1,373,181	790
Magnetite .....					2,180	32
Manganese ore .....	163,169	1,159	152,209	948	142,194	477
Mineral sands—						
Ilmenite .....	638,533	5,334	677,743	6,300	730,905	7,034
Leucosene .....	8,730	358	9,402	420	12,660	975
Monazite .....	3,014	348	3,550	437	3,601	471
Rutile .....	1,260	100	2,441	232	2,456	186
Xenotime .....	38	76	101	119	41	54
Zircon .....	51,785	1,194	54,537	1,350	54,270	1,360
Natural gas .....	143,603	72	301,605	151	544,000	272
Nickel concentrate .....	51,140	(b)	157,555	(b)	299,244	(b)
Ochre .....	588	9			608	6
Pyrite concentrate .....	17,153	188	10,863	125		
Salt .....	195,647	613	1,014,968	3,176	2,685,717	7,092
Semi-precious stones .....	n.a.	11	n.a.	37	n.a.	50
Talc .....	29,159	413	41,388	683	30,761	483
Tantalite concentrate .....	202,868	261	(b)	(b)	350,064	936
Tin concentrate .....	899	1,773	895	1,914	945	1,939
Other (value only) (g) .....		12,473		*48,736		76,984
Total value ex-mine .....		235,017		*339,959		446,643

n.a. denotes 'not applicable'.

(a) Preliminary figures; subject to revision. (b) Not available for publication; value included in 'Other'. (c) Includes production of bentonite. (d) Value based on price per barrel published by Ampol Petroleum Limited. (e) Values include amounts realised by the Gold Producers' Association Ltd. on sales of Western Australian gold—in 1968-69, \$2,214,000; in 1969-70, \$1,780,000; in 1970-71, \$538,000. They also include Commonwealth net subsidy paid to gold producers—in 1968-69, \$1,586,000; in 1969-70, \$1,653,000; in 1970-71, \$2,467,000. (f) Comprises limestone used for agriculture, cement making, flux, glassmaking, lime burning and iron ore pelletising. (g) Includes those minerals for which values are not available for publication. \* Revised.

## Gold

Although specimens of gold had been found in earlier years at several places in the Colony, it was first discovered in payable quantities in the Kimberley in 1885. This find led to widespread prospecting activity, resulting in further gold strikes between 1887 and 1891 in the Yilgarn, Pilbara, Ashburton and Murchison districts. These were followed by spectacular discoveries in 1892 at Coolgardie and in 1893 at Kalgoorlie where the famous Golden Mile was developed. The Golden Mile is still the principal source of gold in the State and accounts for about one-half of Australia's total production. By 1900 all the present proclaimed goldfields, ranging from Kimberley in the north to Phillips River in the south, had been opened up.

Production of fine gold reached a maximum of 2,064,800 fine ounces in 1903 but there followed a gradual and continuous decline, due mainly to exhaustion of surface deposits,

until in 1929 the yield was only 377,176 fine ounces. In succeeding years various economic factors stimulated activity in the industry and there was a well-maintained improvement until 1939 when production reached 1,214,238 fine ounces. The second World War brought about a decline which was accelerated by the introduction early in 1942 of a rigid system of manpower control. Production recovered to some extent in post-war years reaching 874,819 fine ounces in 1958 but, after a short period of fluctuating output between 1959 and 1963, it then declined. In 1970-71 production of fine gold from all sources totalled 345,171 fine ounces.

The figures given in the following table relate to production of gold bullion and do not include gold contained in other minerals. Values include amounts distributed by the Gold Producers' Association Ltd. from premiums on sales of Western Australian gold. The amounts shown as 'Commonwealth net subsidy' represent payments made to gold producers under the Gold-Mining Industry Assistance Act passed by the Commonwealth Parliament in 1954. An amendment to the Act in 1965 liberalised the conditions applying to subsidy payments and continued the operation of the Act until 30 June 1970. Further amendments in 1970 and 1972 to the Gold-Mining Industry Assistance Act extended the Act until 30 June 1973 and 1975, respectively. The 1972 amendment increased both the maximum amount of subsidy paid to large producers and the proportion retained by subsidised producers of the premiums by which the prices obtained for gold exceed the official price.

MINE PRODUCTION OF GOLD BULLION (a)

Item	Unit	1967	1968	1968-69	1969-70	1970-71 (b)
Gold bullion produced .....	oz	877,221	765,417	668,618	542,139	467,189
Metallic content of gold bullion—						
Gold .....	fine oz	572,557	514,821	477,739	390,727	344,545
Silver .....	fine oz	218,442	183,553	160,031	122,092	109,477
Payments by Gold Producers' Association Ltd. ....	\$'000	71	795	2,214	1,780	538
Commonwealth net subsidy .....	\$'000	3,618	2,621	1,586	1,653	2,467
Total value ex-mine .....	\$'000	21,776	19,780	18,935	15,760	13,872

(a) The annual mining census was changed to a fiscal year basis commencing with the year ended 30 June 1969. Preliminary figures; subject to revision.

(b) Pre-

## Silver

The greater portion of silver produced in Western Australia has been obtained as a by-product of gold mining, details of the silver content of gold bullion being given in the previous table. The other silver production is from silver-lead, silver-lead-zinc and copper ores and concentrates exported for treatment outside the State but quantities so obtained are of relatively minor importance.

## Bauxite

Following a survey of bauxite deposits, which occur over a large area in the Darling Range, trial shipments of bauxite totalling 36,741 tons were sent to Tasmania and Japan in 1959 and 1960. In 1961 the Alumina Refinery Agreement Act was passed by the State Parliament ratifying an agreement between the Government and Western Aluminium No Liability for the construction of a refinery at Kwinana to produce alumina from bauxite mined in the Darling Range and for the export of bauxite. A summary of the main provisions of the Act appears on page 104 of the *Official Year Book of Western Australia*, No. 4—1964. The refinery commenced production of alumina towards the end of 1963 with an initial annual capacity of 210,000 metric tons. This capacity has been progressively expanded and at the end of 1972 was 1,400,000 metric tons per annum. Alumina from the refinery is shipped to Victoria for reduction to aluminium, and exported to Japan, the United States of America and the Middle East.

An agreement between the State Government and Western Aluminium No Liability permitting the company to construct a second refinery to be located in the Pinjarra area

south of Perth was ratified by Parliament in terms of the *Alumina Refinery (Pinjarra) Agreement Act, 1969*. Alcoa of Australia (W.A.) Limited subsequently replaced Western Aluminium No Liability as the operating company in both agreements. Production at the Pinjarra refinery commenced in April 1972, the initial capacity of the refinery being 420,000 metric tons per annum. It is planned to increase the capacity to 800,000 metric tons per annum by the end of 1974.

Development of the extensive bauxite deposits discovered in the Admiralty Gulf area in the Kimberley in 1965 by Amax Bauxite Corporation as planned under the provisions of the *Alumina Refinery (Mitchell Plateau) Agreement Act, 1969-1972* has been deferred for a number of years.

### Coal

The first reports of coal discoveries, in the Murray district and on the Irwin River, were made in 1846 but the only commercial production in Western Australia occurs at the Collie River Mineral Field. The coal is sub-bituminous in rank and there are substantial reserves in the area.

Annual production exceeded 1 million tons for the first time in 1954, but in 1956 it fell to 830,007 tons. It increased in each of the next four years and in 1960 production totalled 922,393 tons. A major producer closed its mines on the termination in December 1960 of its contract for the supply of coal to the State Government, and production declined to 765,740 tons in 1961. There was a substantial recovery in 1962, when 919,112 tons were produced. This recovery has been maintained and production in 1970-71 was 1,171,398 tons, the highest ever recorded.

COAL PRODUCTION (a)

Particulars							1967	1968	1968-69	1969-70	1970-71 (b)
Coal produced—											
From underground mines	....	....	....	....	....	'000 tons	494	482	479	480	431
From surface mines	....	....	....	....	....	'000 tons	568	605	624	679	740
Total	....	....	....	....	....	'000 tons	1,062	1,087	1,103	1,159	1,171
Value	....	....	....	....	....	\$'000	4,765	4,817	4,853	5,407	5,653

(a) The annual mining census was changed to a fiscal year basis commencing with the year ended 30 June 1969. Preliminary figures; subject to revision.

(b) Preliminary figures.

Surface mining was commenced at Collie in 1943 and the amount produced by this means increased rapidly until in 1952 almost one-half of the total production came from surface mines. In each year from 1953 to 1960 the proportion of coal from surface mines was less than in 1952, and in 1960 was little more than one-eighth of all coal produced. New contracts for government requirements, which came into operation at the beginning of 1961, provided for an increase in supplies from surface mines, and in 1970-71 more than 63 per cent of all coal produced came from this source.

### Copper Ore and Concentrates

Copper ore in commercial quantities was discovered in 1849 in the Northampton district. High-grade ore was found in 1855 at Bowes River in the same area and in 1872 one of the richest deposits was discovered in the West Pilbara near Roebourne. Considerable quantities of copper have been produced at the mines in the Northampton district, where it occurs in association with lead, and also in the Ravensthorpe area, in association with gold. Another important producer has been the Murrin Murrin district in the Mount Margaret area.

Due to low prices, rising costs of mining and treatment and the exhaustion of rich secondary ores near the surface, production was on a very small scale between 1925 and

1956. It then increased substantially and in 1961 reached 6,290 tons. In the succeeding years production has declined and in 1970-71 amounted to 2,583 tons. Production of copper concentrates by the major producer in recent years ceased during 1971.

**PRODUCTION OF COPPER CONCENTRATES (a)**  
(For smelting to copper)

Year	Quantity	Metallic content			Value
		Copper	Gold	Silver	
	tons	tons	fine oz	fine oz	\$'000
1967 ....	3,093	662	1,198	5,131	578
1968 ....	4,276	963	1,129	3,806	914
1968-69 ....	3,353	775	1,385	5,965	647
1969-70 ....	*3,442	*692	(c)	(c)	*798
1970-71 (b) ....	2,583	472	689	751	420

(a) The annual mining census was changed to a fiscal year basis commencing with the year ended 30 June 1969. (b) Preliminary figures; subject to revision. (c) Not available for publication. \* Revised.

### Copper Ore (for fertiliser)

The demand for copper to remedy trace element deficiencies in soils created a market for low-grade ores for use in chemical fertilisers. Until this development, the production of ores having a low copper content was uneconomical because of high costs of transport and smelting.

**PRODUCTION OF COPPER ORE FOR FERTILISER (a)**

Year	Quantity	Metallic content	Value
		Copper	
	tons	tons	\$
1967 ....	776	101	48,069
1968 ....	691	90	45,009
1968-69 ....	940	117	112,619
1969-70 ....	*627	*113	*73,770
1970-71 (b) ....	92	18	12,512

(a) The annual mining census was changed to a fiscal year basis commencing with the year ended 30 June 1969. (b) Preliminary figures; subject to revision. \* Revised.

Production for use in fertilisers commenced in 1947 and increased to 7,731 tons in 1955. After reaching a peak of 11,859 tons in 1959, it declined in 1960 and 1961 but improved to 9,275 tons in 1962. In subsequent years production decreased substantially and in 1970-71 amounted to only 92 tons. The Yalgoo, Pilbara and Peak Hill areas are the principal sources of supply.

### Mineral Sands

Ilmenite, leucoxene, monazite, rutile, xenotime and zircon concentrates are being produced from mineral sands mined at Capel, Wonnerup and Stratham, and treated at Bunbury and Capel. The ilmenite content is of particular importance because it is virtually chrome-free and little difficulty is experienced in producing a concentrate of high quality. Production of ilmenite concentrates commenced in 1956, when recorded production was 3,293 tons. Output has risen rapidly and in 1970-71 amounted to 730,905 tons. Production of the other concentrates, which are recovered as by-products from the treatment of the beach sands for ilmenite, commenced in 1958 and output of leucoxene, monazite, rutile, xenotime and zircon in 1970-71 totalled 73,028 tons.

Following research into the feasibility of producing upgraded ilmenite concentrates as an alternative to natural rutile as an input in the manufacture of chloride pigments Western Titanium Limited, in October 1972, announced plans to construct a full-scale ilmenite upgrading plant with a designed capacity of 30,000 tons per annum. It is anticipated that the plant will be fully operational during 1974-75.

Production of ilmenite, leucosene, monazite, rutile, xenotime and zircon concentrates from mineral beach sands in the period 1967 to 1970-71 is given in the following table.

PRODUCTION OF MINERAL BEACH SANDS (a)

Particulars	Unit	1967	1968	1968-69	1969-70	1970-71 (b)
<b>Ilmenite concentrates—</b>						
Quantity .....	ton	529,914	535,232	638,533	677,743	730,905
Value .....	\$	4,362,469	4,531,740	5,334,097	6,299,866	7,033,667
<b>Leucosene concentrates—</b>						
Quantity .....	ton	696	1,607	8,730	9,402	12,660
Value .....	\$	32,653	70,312	357,925	420,457	975,303
<b>Monazite concentrates—</b>						
Quantity .....	ton	1,570	1,256	3,014	3,550	3,601
Value .....	\$	189,058	142,167	347,693	436,939	471,253
<b>Rutile concentrates—</b>						
Quantity .....	ton	400	845	1,260	2,441	2,456
Value .....	\$	26,285	63,748	100,392	232,310	185,726
<b>Xenotime concentrates—</b>						
Quantity .....	ton	18	18	38	101	41
Value .....	\$	45,000	45,000	76,300	119,351	53,869
<b>Zircon concentrates—</b>						
Quantity .....	ton	32,166	28,096	51,785	54,537	54,270
Value .....	\$	1,067,539	826,606	1,193,667	1,349,937	1,360,461

(a) The annual mining census was changed to a fiscal year basis commencing with the year ended 30 June 1969.

(b) Preliminary figures; subject to revision.

## Iron

The major iron-ore deposits are concentrated in the north-west of the State, and measured, indicated and inferred reserves of iron ore with an iron content of 50 per cent or higher have been assessed at 20,000 million tons. Since 1951 large quantities of hematite have been produced at Cockatoo Island (Yampi Sound) in the West Kimberley district for shipment to Kwinana in Western Australia, other Australian States and overseas. The first shipment of ore from the deposits on the adjacent Koolan Island was made in January 1965, following the completion of mining and loading facilities which had been under development since 1960.

As a result of the passage in 1960 of the Broken Hill Proprietary Company's Integrated Steel Works Agreement Act, which ratifies an agreement between the State Government and the Company relating to the establishment of an integrated iron and steel industry in Western Australia, a mine was developed at Koolyanobbing which commenced production in April 1967. The ore is being railed to Kwinana for use in the blast furnace established at Kwinana in terms of the agreement, and for export interstate and overseas.

The announcement in December 1960 of the Commonwealth Government's decision to modify its embargo on overseas exports, which had been in force since 1938, caused increased interest in Western Australian deposits. The subdivision of the deposits (other than those reserved for the domestic iron and steel industry under the Commonwealth's revised export policy) into three categories was announced by the State Government in March 1961. The first category includes known high-grade deposits, not covered by lease agreements, which are to be retained by the Crown to ensure supplies for the State's steel requirements or for export. The second category, being known medium and low-grade deposits, and the third category, comprising deposits as yet undiscovered, may be made the subject of temporary reservations granting the right to explore, each such reservation being limited to a maximum area of fifty square miles.

The State Parliament ratified a number of agreements between the Government and private companies for the mining and export of iron ore and, in certain instances, for secondary processing of the ore as a later development and, ultimately, for the establishment of integrated iron and steel works. The provisions of these agreements are referred to on pages 106 and 110 of the *Official Year Book of Western Australia*, No. 4—1964, in the section *Legislation during 1963 and 1964* in Chapter III of the succeeding issue, on page 114 of the *Western Australian Year Book*, No. 6—1967, on page 111 of the 1969 Year Book, on page 113 of the 1970 issue and on page 106 of the Year Book for 1971. The ore is now being exported overseas, mainly to Japan. A number of contracts between leading Japanese steel mills and certain of the mining companies resulted in large-scale mining operations which commenced in 1966. Ore from Koolanooka Hills, near Morawa, is being transported by rail to the port of Geraldton, 100 miles distant. From Mount Goldsworthy, about seventy miles east of Port Hedland, ore is being railed to a deep-water port on Finucane Island, just off Port Hedland. Ore mined at Mount Tom Price, in the Hamersley Range area south-west of Port Hedland, is being railed 182 miles to the port of Dampier in King Bay, which is west of Roebourne. From Mount Whaleback in the Ophthalmia Range ore is railed to Port Hedland, 265 miles to the north. The first shipments of iron ore under these contracts were made from Geraldton on 17 March 1966; from Port Hedland on 2 June 1966; and from Dampier on 22 August 1966. Construction of the Robe River project under the *Iron Ore (Cleveland-Cliffs) Agreement Act, 1964* is nearing completion and the operating company is already stockpiling beneficiated ore at its port site at Cape Lambert.

Production of iron ore under these contracts has increased substantially each year, rising to 45·7 million tons in 1970-71, as shown in the next table.

PRODUCTION OF IRON ORE (a)

Year	Quantity	Metallic content	Value
		Iron	
	'000 tons	'000 tons	\$'000
1967	12,161	7,868	70,253
1968	18,828	12,157	110,942
1968-69	23,345	*14,872	140,075
1969-70	*34,030	21,514	195,078
1970-71 (b)	45,684	28,875	279,478

(a) The annual mining census was changed to a fiscal year basis commencing with the year ended 30 June 1969.

(b) Preliminary figures; subject to revision. \* Revised.

## Lead Ore

Lead ore was discovered near the lower Murchison River in 1848. It has since been found in other localities, principally in the Pilbara, Ashburton and West Kimberley districts, and half a million tons have been raised, the great bulk of it from the mineral field around Northampton, the area of the first finds. Production fluctuated very widely and ceased almost entirely during the war, but a substantial increase occurred in the post-war years and in 1956 it rose to 7,613 tons. After 1956 it declined rapidly and in 1963 only 185 tons were produced. In 1964, when 3,354 tons were produced, there was a revival of lead mining in the West Kimberley mineral field. After a further gain to 4,878 tons in 1965, production again declined and in 1970-71 was only 186 tons.

Although the ore from the Northampton field is almost free from silver, that from other areas further north, notably the Ashburton, Pilbara and West Kimberley, has a silver content which may be as much as ten ounces per ton. Production of such ores is included in the following table.

## PRIMARY PRODUCTION

## PRODUCTION OF LEAD CONCENTRATES (a)

Year	Quantity	Metallic content			Value
		Silver	Lead	Zinc	
	tons	fine oz	tons	tons	\$
1967	910	....	688	....	82,460
1968	418	46	311	....	33,381
1968-69	4,429	64	1,367	....	149,501
1969-70	271	56	179	(c)	35,115
1970-71 (b)	186	35	84	....	18,341

(a) The annual mining census was changed to a fiscal year basis commencing with the year ended 30 June 1969. (b) Preliminary figures; subject to revision. (c) Not available for publication.

## Manganese Ore

Deposits of manganese ore occur in several parts of the State but up to the end of 1947 only 252 tons had been mined. After 1947 production increased rapidly and in 1961 totalled 83,660 tons. After a decline to 34,808 in 1963, production increased and in 1967 a record output of 195,065 tons was produced. In 1970-71 production fell to 142,194 tons.

## PRODUCTION OF MANGANESE ORE (a)

Year	Quantity	Metallic content	Value
		Manganese	
	tons	tons	\$'000
1967	195,065	89,024	1,277
1968	150,338	69,398	735
1968-69	163,169	75,613	1,159
1969-70	152,209	76,612	948
1970-71 (b)	142,194	64,421	477

(a) The annual mining census was changed to a fiscal year basis commencing with the year ended 30 June 1969. (b) Preliminary figures; subject to revision.

## Nickel

The discovery on 28 January 1966 of nickel deposits at Kambalda, thirty-five miles south of Kalgoorlie, was announced by Western Mining Corporation Limited on 4 April 1966 and production from the deposits commenced in June 1967. Since 1966 there has been rapid expansion in the nickel industry accompanied by a very high level of exploration activity. At the end of 1972 mines were operating at Kambalda, Scotia and Nepean and development work in preparation for mining was being carried out at Mount Windarra and Spargoville.

The nickel refinery of Western Mining Corporation at Kwinana, constructed in terms of the *Nickel Refinery (Western Mining Corporation Limited) Agreement Act, 1968*, was completed in May 1970. Production of nickel metal, using nickel concentrates railed from the Company's Kambalda plant, commenced in the same month and the refinery began operating at its designed capacity of 15,000 tons of nickel metal per annum early in 1971.

A nickel smelter, due for completion early in 1973, is being constructed at Kalgoorlie for Western Mining Corporation Limited and will have an initial capacity to treat 200,000 tons of nickel concentrates per annum.

Details of production of nickel concentrates from 1967 to 1970-71 are given in the following table. The value of production is not available for publication.

## PRODUCTION OF NICKEL CONCENTRATES (a)

Year	Quantity	Metallic content—		
		Nickel	Copper	Cobalt
	tons	tons	tons	tons
1967 .....	15,753	2,061	264	45
1968 .....	36,880	4,603	538	121
1968-69 .....	51,140	6,086	767	99
1969-70 .....	157,555	17,762	1,814	170
1970-71 (b) .....	299,244	34,366	2,892	331

(a) The annual mining census was changed to a fiscal year basis commencing with the year ended 30 June 1969. (b) Preliminary figures; subject to revision.

## Petroleum

Reference to petroleum exploration in Western Australia is made on page 396. In May 1966 Barrow Island, sixty miles north-east of Onslow, was declared a commercial oilfield, after prolonged testing. Production commenced in 1967 and the first shipment of crude oil from this field was made on 25 April 1967. A construction and development programme on the island has been completed by West Australian Petroleum Pty. Ltd. and crude oil production at the end of 1971 was approaching 50,000 barrels daily. Recoverable reserves of oil are estimated at 200 million barrels.

Following an extensive exploratory drilling programme by West Australian Petroleum Pty. Ltd. the Dongara gas field, approximately sixty miles south-east of Geraldton, was declared commercially viable on 1 July 1970. Construction of a 255-mile underground pipeline, from Dongara to Kwinana and Pinjarra, costing in excess of \$19 million commenced on 25 January 1971. West Australian Natural Gas Pty. Limited, a sister company of West Australian Petroleum Pty. Ltd., is marketing the gas to certain industries and to the State Electricity Commission for general distribution and power generation. Supply of the gas to domestic and industrial consumers commenced on 1 December 1971.

## PRODUCTION OF PETROLEUM (a)

Year	Crude oil		Natural gas	
	Quantity	Value	Quantity	Value
	'000 bbls	\$'000	'000 cu ft	\$'000
1967 .....	4,819	13,900	25,575	(b)
1968 .....	10,777	31,036	92,922	46
1968-69 .....	11,649	33,549	143,603	72
1969-70 .....	15,583	44,879	301,605	151
1970-71 (c) .....	16,335	35,370	544,000	272

(a) The annual mining census was changed to a fiscal year basis commencing with the year ended 30 June 1969. (b) Not available for publication. (c) Preliminary figures; subject to revision.

## Potash

An agreement between the Western Australian Government and Texada Mines Pty. Limited relating to the production of potash and other evaporites at or near Lake MacLeod was ratified by Parliament in terms of the *Evaporites (Lake MacLeod) Agreement Act, 1967*. Following a \$300,000 proving programme the company is proceeding with the establishment of a potash industry at an estimated cost of \$13 million. The first stage, costing \$4.5 million, is expected to be completed by May 1973 and it is anticipated that initial output will be 80,000 tons per annum. Subsequent planned additions would enable an annual production of 280,000 tons.

## Pyrites

The mining of iron pyrites was developed during the war to provide a substitute for overseas supplies of sulphur required for the manufacture of sulphuric acid for superphosphate. Production at Norseman, which was the principal source of supply since

1942, ceased in June 1968. A second source of supply was developed in 1956 when a metropolitan works commenced using concentrates from a gold mine at Kalgoorlie for the extraction of gold and sulphur. Production from this source ceased in February 1970.

#### PRODUCTION OF PYRITE CONCENTRATES (a)

Year	Quantity	Sulphur content	Value
	tons	tons	\$'000
1967 ....	78,685	34,359	988
1968 ....	32,879	14,433	308
1968-69 ....	17,153	7,508	188
1969-70 ....	10,863	4,982	125
1970-71 ....	....	....	....

(a) The annual mining census was changed to a fiscal year basis commencing with the year ended 30 June 1969.

#### Salt

Common salt (sodium chloride) occurs extensively in Western Australia both in maritime lagoons and inland lakes and has been harvested on a commercial basis for many years from dry lake beds. In November 1968 Lefroy Salt Pty. Ltd. commenced large-scale production of salt from Lake Lefroy in the Shire of Coolgardie where the salt deposited has an exceptional purity.

In recent years the production of salt by the solar evaporation of sea water has become the major source of salt in this State. The low rainfall in the North-West coupled with the high evaporation rate make the north-west coast ideal for solar salt production. Leslie Salt Company is producing salt near Port Hedland; Texada Mines Pty. Limited is producing at Lake MacLeod near Carnarvon; the Shark Bay Salt and Gypsum Venture is engaged in salt production at Useless Loop in Shark Bay; and Dampier Salt Limited is producing salt at Dampier. Further development of the solar salt project at Exmouth Gulf has been deferred pending recovery in the world salt market.

The salt industry is being developed principally for the export market and to date all exports have been to Japan. During the year ended June 1971, 2,685,717 tons of salt valued at \$7,092,000 were produced.

#### Tin Ore

Tin ore was first discovered at Greenbushes in 1888. It has since been found at several other places, but the Greenbushes and Pilbara fields have been the only major producers. Output declined during the war but increased substantially after 1949 and reached a peak in 1956 when 358 tons of ore and concentrates were produced. By 1958, however, it had declined to 138 tons, the decrease being due mainly to contraction of operations in the Greenbushes field. After 1958 production again increased and in 1970-71 total output was 945 tons valued at \$1,939,000.

#### PRODUCTION OF TIN CONCENTRATES (a)

Year	Quantity	Tin content	Value
	tons	tons	\$'000
1967 ....	1,074	747	2,150
1968 ....	895	624	1,630
1968-69 ....	899	624	1,773
1969-70 ....	895	609	1,914
1970-71 (b) ....	945	(c) 656	1,939

(a) The annual mining census was changed to a fiscal year basis commencing with the year ended 30 June 1969.  
 (b) Preliminary figures; subject to revision.  
 (c) Includes tin content of tantalite concentrates.

### Other Minerals

In addition to the other minerals listed in the table on page 386 there are some which have a high potential value but are not produced in large quantities at present. Zinc is associated with many of the silver-lead ores and some of the copper ores and has been mined as the carbonate with a zinc content of 38 per cent. Arsenious oxide and antimonial concentrates were produced commercially for some years as by-products in the treatment of auriferous ores. Small amounts of bismuth concentrates assaying as high as 73 per cent bismuth have also been produced. Tungsten ores have been produced in small quantities for some years with a slight increase during the war. Since then, output has been spasmodic. Glass sand (silica) is being produced and significant quantities are being exported overseas. Lithium, yttrium, cerium, thorium, vanadium, niobium, and molybdenum-bearing minerals are known to occur in commercial quantities and small amounts of minerals containing uranium, rubidium and caesium have been found. Deposits of bentonite, barytes, graphite, mica, kyanite, sillimanite, spodumene and vermiculite are also known and small amounts have been produced.

### Construction Materials

The following table gives details of the production of certain construction materials from 1967 to 1970-71. It should be noted that gravel, sand and clays, for which reliable and complete information cannot be obtained are not included.

PRODUCTION OF CONSTRUCTION MATERIALS (a)

Year	Building and monumental stone (b)		Crushed and broken stone (c)		Crushed and broken limestone (d)	
	Quantity	Value	Quantity	Value	Quantity	Value
	'000 tons	\$'000	'000 tons	\$'000	'000 tons	\$'000
1967 ....	127	258	2,480	5,603	578	234
1968 ....	170	364	3,056	6,938	604	221
1968-69 .....	185	406	3,748	9,724	867	363
1969-70 .....	174	357	3,428	10,324	852	298
1970-71 (e) .....	107	281	4,186	10,144	1,048	484

(a) The annual mining census was changed to a fiscal year basis commencing with the year ended 30 June 1969. (b) Limestone, granite, sandstone and other stone. (c) Principally for roads, concrete aggregate and rail ballast. (d) Principally for road construction. (e) Preliminary figures; subject to revision.

## PRIVATE EXPLORATION FOR MINERALS

### Mineral Exploration (excluding petroleum)

Mineral exploration, which covers a major portion of the State, is concerned chiefly with exploration for iron, nickel, copper, gold, lead, tin, bauxite, manganese, phosphates, mineral sands, talc and coal, apart from petroleum (see following section).

In the next table, details are given of private exploration in Western Australia for the years 1967 to 1970-71. The data have been derived from the annual Mineral Exploration Census (excluding Petroleum Exploration) which is carried out by the Commonwealth Bureau of Census and Statistics. The first census was conducted in respect of the year 1965 and for further information and statistics in greater detail, the reader is referred to the mimeographed publication *Mineral Exploration* issued by the Commonwealth Statistician, Canberra.

For the purpose of the census, 'mineral exploration' consists of the search for, and/or appraisal of, new ore occurrences and known deposits of minerals (including extensions to deposits being worked) by geological, geophysical, geochemical, and other methods, including drilling. The construction of shafts and adits is included if primarily for exploration purposes but mine development activities and exploration for water are excluded.

## MINERAL EXPLORATION (OTHER THAN FOR PETROLEUM) (a)

Particulars	Unit	1967	1968	1968-69	1969-70	1970-71
PRIVATE EXPLORATION (b) ON PRODUCTION LEASES						
Expenditure (c)—						
On drilling ....	\$'000	801	909	2,184	2,921	4,423
Other (d) ....	\$'000	329	468	1,120	3,082	6,928
Total ....	\$'000	1,130	1,377	3,305	6,004	11,350
Payments to contractors (e) ....	\$'000	194	204	1,435	2,196	3,562
Employment (f)—						
Working proprietors and working partners ....	man-week	(g)	(g)	(g)	(g)	257
Professional persons (h) ....	man-week	895	795	1,566	3,296	4,866
Non-professional persons (i) ....	man-week	3,742	4,819	5,255	10,732	14,750
Total man-weeks worked ....	man-week	4,637	5,614	6,821	14,028	19,873
Footage drilled, sunk or driven—						
Drilled—						
Core ....	feet	134,010	111,297	228,086	335,235	394,758
Non-core ....	feet	111,346	244,919	307,234	467,420	942,600
Total ....	feet	245,356	356,216	535,320	802,655	1,337,218
Sunk or driven (j) ....	feet	2,605	11,190	83,549	37,587	6,665

## OTHER PRIVATE EXPLORATION (b)

Expenditure (c)—						
On drilling ....	\$'000	2,512	5,558	8,279	11,372	17,085
Other (d) ....	\$'000	6,361	16,213	23,828	42,445	57,647
Total ....	\$'000	9,073	21,771	32,107	53,817	74,732
Payments to contractors (e) ....	\$'000	2,965	7,382	12,226	17,915	26,482
Employment (f)—						
Working proprietors and working partners ....	man-week	(g)	(g)	(g)	(g)	4,104
Professional persons (h) ....	man-week	12,885	13,668	16,770	22,960	31,772
Non-professional persons (i) ....	man-week	20,097	33,555	44,083	66,325	79,727
Total man-weeks worked ....	man-week	32,982	47,223	60,853	89,285	115,603
Footage, drilled, sunk or driven—						
Drilled—						
Core ....	feet	227,658	603,532	771,062	844,985	810,630
Non-core ....	feet	426,128	785,363	1,064,579	4,628,395	4,265,718
Total ....	feet	653,786	1,388,895	1,835,641	5,473,380	5,076,348
Sunk or driven (j) ....	feet	5,347	11,530	38,041	30,446	240,750

## TOTAL PRIVATE EXPLORATION (b)

Expenditure (c)—						
On drilling ....	\$'000	3,313	6,467	10,464	14,293	21,507
Other (d) ....	\$'000	6,890	16,681	24,948	45,527	64,574
Total ....	\$'000	10,203	23,148	35,412	59,821	86,082
Payments to contractors (e) ....	\$'000	3,159	7,586	13,661	20,111	30,044
Employment (f)—						
Working proprietors and working partners ....	man-week	(g)	(g)	(g)	(g)	4,361
Professional persons (h) ....	man-week	13,780	14,463	18,336	26,256	36,638
Non-professional persons (i) ....	man-week	23,839	38,374	49,338	77,057	94,477
Total man-weeks worked ....	man-week	37,619	52,837	67,674	103,313	135,476
Footage drilled, sunk or driven—						
Drilled—						
Core ....	feet	361,668	714,829	999,148	1,180,220	1,205,388
Non-core ....	feet	537,474	1,030,282	1,371,813	5,095,815	5,208,178
Total ....	feet	899,142	1,745,111	2,370,961	6,276,035	6,413,566
Sunk or driven (j) ....	feet	7,952	22,720	121,590	68,033	247,415

(a) The annual census of mineral exploration was changed to a fiscal year basis commencing with the year ended 30 June 1969.  
 (b) Excludes exploration by the Western Australian Department of Mines and the Commonwealth Bureau of Mineral Resources, Geology and Geophysics. (c) Expenditure whether charged as working expenses or capitalised. Includes payments to contractors. (d) Includes expenditure on geological work and on adits, shafts, etc. (e) Amounts paid to drilling contractors, geological consultants, technical advisers, etc. for exploration services. Included in preceding figures. (f) Comprises the operator and his staff only; includes time spent on report writing and similar off-site activities associated with exploration; excludes contractors and their employees. (g) Not collected as a separate item prior to 1970-71. (h) Geologists, geophysicists, engineers, etc. engaged in exploration work. (i) Drill operators, field hands, etc. (j) Includes shafts, winzes, etc. sunk; drives, adits, etc. driven; and costeans, small pits, etc.

## Petroleum Exploration

An extensive programme of oil exploration using modern geophysical and drilling techniques commenced in 1952 and resulted in the discovery of flow oil in the Exmouth Gulf area of the Carnarvon Basin in 1953. The discovery proved to be of non-commercial significance, but it stimulated further exploration for oil in Western Australia. A large area of the State has now been scientifically examined and geophysical and geological surveys are still being carried out. Discoveries of crude oil and/or gas have been made at

Barrow Island and Yardarino (1964), at Gingin (1965), at Dongara (1966), at Pascoe Island (1967), at Mondarra (1968).

In recent years exploration off the coast of Western Australia has intensified and crude oil and/or gas has been discovered in a number of offshore wells located on the north-west continental shelf, north of 21 degrees latitude.

Information on petroleum exploration expenditure and on drilling in Western Australia for the five years 1967 to 1971 is given in the tables below. These figures have been compiled from data published by the Commonwealth Bureau of Mineral Resources, Geology and Geophysics.

Petroleum exploration is defined as consisting of the search for, and/or appraisal of, deposits of crude petroleum and/or gas by geological, geophysical, geochemical and other means, including drilling. Included in the expenditure are the costs of drilling exploratory oil and/or gas wells and the testing of such wells. Also included are the costs of access roads, site construction, permits, licences and similar fees, relevant office buildings and furniture, transportation equipment, storage facilities, plant and equipment and review work if primarily for the purposes of exploration for deposits of petroleum or natural gas. The cost of drilling developmental oil and/or gas wells and expenditure on production facilities, and pipelines and production costs, etc. are excluded.

PRIVATE PETROLEUM EXPLORATION—EXPENDITURE AND SOURCE OF FUNDS  
(S'000)

Particulars	1967	1968	1969	1970	1971
Private expenditure (a)—					
Geological .....	1,159	449	516	801	1,408
Geophysical .....	7,282	6,026	6,684	8,876	9,126
Drilling .....	6,397	17,463	23,847	21,771	32,162
Other .....	390	1,621	1,432	2,714	2,766
Total .....	*15,229	*25,560	32,480	34,161	45,462
Source of funds—					
Private sources .....	11,788	21,532	26,194	29,557	41,872
Government subsidy (b) .....	3,441	4,027	6,286	4,604	3,590

(a) Includes expenditure financed by payments under the *Petroleum Search Subsidy Act* 1959–1969 (Commonwealth).

(b) Comprises payments under the *Petroleum Search Subsidy Act* 1959–1969. \* Revised.

PRIVATE PETROLEUM EXPLORATION—WELLS AND FOOTAGE DRILLED (a)

Particulars	1967	1968	1969	1970	1971
Wells drilled (b) .... No.	194	127	206	63	32
Average total depth of wells drilled (c) .... ft	5,444	5,832	7,500	6,654	8,363
Wells completed as potential oil producers .... No.	164	53	97	13	....
Wells completed as potential gas producers .... No.	2	1	7	2	1
Wells drilled or drilling over 10,000 ft .... No.	4	5	9	5	14
Footage drilled—					
Completed wells .... ft	561,324	406,189	636,818	217,347	222,150
Uncompleted holes (d) .... ft	7,714	30,811	10,871	28,737	10,857
Total footage drilled .... ft	569,038	437,000	647,689	246,084	233,007

(a) For 1971 the data exclude particulars for developmental wells.

(b) Number of holes which reached total depth during the year.

(c) See footnote (a).

(d) Comprises wells suspended and wells on which drilling was in progress at 31 December of the year shown.

## *Chapter VIII—continued*

### **Part 2—Secondary Industry**

For 1968-69 and subsequent years manufacturing statistics are based on concepts and definitions which differ considerably from those which apply to the data presented below in the section *Historical Review*. These changes in concept and definition arose from the integration of the manufacturing census (which prior to 1968-69 included electricity and gas-producing establishments) with censuses of mining, wholesale, retail and selected services as part of a programme of fully integrated economic censuses as from the year 1968-69. The nature of the changes made in 1968-69 are explained briefly later in this Part in the section *Manufacturing Censuses, 1968-69 and 1969-70* commencing on page 400.

As a consequence of the changes, data for 1968-69 and subsequent years are not directly comparable with that for previous periods shown in the following historical review.

### **HISTORICAL REVIEW**

While secondary industry in Western Australia has grown considerably since 1900 the greatest advance both in the number and the size of factories operating has occurred since 1945. The industrial growth has occurred mainly in the metropolitan area and has been facilitated by the provision of adequate power which is transmitted to the metropolitan area via a grid system from generating stations located in the south-western portion of the State.

In 1900 there were 632 factories operating in Western Australia. By 1910 the number had risen to 822 and by 1920 to 998. Progress during the first World War was comparatively slow, mainly because the more advanced manufacturing facilities already existing in other States were better suited to rapid development. During the decade 1921-1930, however, efforts were made to foster Western Australian secondary industry and considerable success was achieved during the latter years of this period, the number of factories increasing from 1,170 in 1926 to 1,466 in 1930. Although some decline occurred in the depression years of 1930 to 1933, there were 1,658 factories in operation in 1935 and by 1940 the number had reached 2,129.

No immediate stimulus to the State's manufacturing activity followed the outbreak of the second World War, but the more direct threat to Australia which resulted from the fall of Singapore called for a total use of industrial potential, and from 1942 onwards an increasing volume of war contracts was placed in Western Australia. The greatest demand was for processed foodstuffs but other forms of war production which were especially developed included munitions manufacture, shipbuilding (principally of wooden coastal craft) and marine engineering. Although fewer factories operated because of the decline in those classes of production which were purely for civilian purposes, employment and output increased substantially.

Production which had developed largely to meet the demands of the armed services declined sharply at the conclusion of the war and this was reflected particularly in the decreased manufacture of processed foodstuffs, the full production of which considerably exceeded civilian requirements. Secondary industry as a whole benefited greatly, however, from the engineering skills and equipment acquired in wartime activities and their transfer to civilian uses facilitated the expansion of the metal industries in the State and influenced the production of small to medium-sized machine tools and the establishment of a factory producing several types of tractors and farm machinery.

Such advances enlarged the scope of Western Australian secondary industry and by 1967-68 the number of factories had increased to 5,404. Net production per head of population, however, still remained higher in all the other States except Queensland. Manufacturing net production per head of mean population in each of the States and in Australia as a whole during 1967-68 was as follows: New South Wales, \$720; Victoria, \$725; Queensland, \$383; South Australia, \$565; Western Australia, \$435; Tasmania, \$522; and Australia, \$623.

The average number of persons employed in Western Australian factories from 1900 to 1968 is given in the table below. Total employment in factories for additional years appears in the *Statistical Summary from 1829* following Chapter X.

The large increase between 1944-45 and 1949-50 was due in part to the establishment of many smaller types of factory, such as motor-repair workshops, dry-cleaning works and bakeries, resulting from the return to civilian life of service personnel and from unusually large population gains by natural increase and from immigration. This high level of population increase was maintained in the following five years and in 1954-55 average factory employment reached 49,314. In 1955-56 the number of persons engaged in factories exceeded 50,000 for the first time but then declined in each of the three succeeding years and in 1958-59 had fallen to 48,417. An improvement in 1959-60, when the average for the year rose to 49,651, was maintained over the next eight years and by 1967-68 employment in factories had risen to 67,335.

SELECTED ITEMS OF FACTORY ACTIVITY (a)

Year	Number of factories (c)	Persons employed (b)			Book values of—		Engines and electric motors used to drive machinery (e)	Net production (f)
		Males	Females	Total	Land and buildings (d)	Plant and machinery (d)		
					\$'000	\$'000	rated hp	\$'000
1900 ....	632	10,261	905	11,166	2,409	2,506	7,270	(g)
1905 ....	777	11,829	1,652	13,481	3,579	3,740	11,151	(g)
1910 ....	822	12,404	2,490	14,894	3,646	3,879	11,378	5,472
1915 ....	983	13,453	2,429	15,882	5,271	5,467	21,997	6,468
1920 ....	998	14,311	2,631	16,942	7,128	6,822	26,481	9,708
1925-26 (h) ..	1,170	17,393	3,274	20,667	9,710	10,962	37,631	19,222
1929-30 ....	1,466	15,921	3,722	19,643	11,246	12,822	37,754	14,976
1934-35 ....	1,658	14,248	3,521	17,769	11,347	11,527	42,520	12,570
1939-40 ....	2,129	18,331	4,636	22,967	13,727	15,917	66,925	18,055
1944-45 ....	1,931	22,404	6,742	29,146	15,308	16,508	80,667	25,920
1949-50 ....	3,023	33,711	7,022	40,733	22,110	22,914	120,380	52,088
1954-55 ....	3,727	42,294	7,020	49,314	60,460	109,916	204,848	121,912
1959-60 ....	4,279	42,957	6,694	49,651	87,146	128,450	261,660	172,747
1963-64 ....	4,609	48,163	7,542	55,705	118,813	155,514	327,425	230,511
1964-65 ....	4,734	50,065	8,032	58,097	131,739	163,526	345,586	260,637
1965-66 ....	4,906	51,464	8,818	60,282	151,047	197,210	371,888	288,803
1966-67 ....	5,167	53,981	9,776	63,757	170,308	250,858	397,513	335,788
1967-68 ....	5,404	56,835	10,500	67,335	198,640	296,659	485,644	388,257

(a) Includes particulars for electricity and gas establishments. The data are not comparable with figures for later years; see letterpress on page 400.

(b) Average number employed over the whole year; includes working proprietors and, up to and including 1925-26, fallers and haulers employed by sawmills.

(c) Establishments engaged in the processes of manufacturing, assembling, treating or repairing and in which four or more persons were employed during any period of the year or power other than manual was used.

(d) Includes estimated value of rented premises and plant.

(e) Excludes engines used in electricity generating stations and motors driven by electricity of own generation.

(f) The value added in the course of manufacture representing the sum available for payment of wages, rent, depreciation, other sundry expenses, interest and profit.

(g) Figures not available.

(h) Period of 18 months ended 30 June 1926.

Several relatively large concerns began to operate during the post-war years. Sharp rises in the total horsepower of engines used to drive machinery are indicative of this growth in the number of highly-mechanised works. Increases in net production and the enhanced values of land and building and of plant and machinery are also significant, but when considering these figures allowances should be made for price changes which occurred during the period.

In recent years the scope of Western Australian secondary industry has been enlarged by the introduction of large and medium sized factories engaged in such activities as oil

refining, steel rolling, titanium dioxide extraction, paper production, alumina refining, cotton ginning, rubber tyre manufacture, blast furnace operations, iron ore pelletising, explosives manufacture, ammonium nitrate production and nickel smelting and refining.

### MANUFACTURING CENSUSES, 1968-69 AND 1969-70

Manufacturing statistics (except commodity statistics) for 1968-69 and subsequent years are not directly comparable with figures for years prior to 1968-69 because of changes in the census units, the scope of the census and the items of data, as set out below.

#### Standardisation of Census Units

A census unit (the establishment), in general now covers all of the operations carried on under the one ownership at a single physical location. The manufacturing establishment is thus one predominantly engaged in manufacturing but the data supplied for it now cover, with few exceptions, both manufacturing and all other activities (*e.g.* wholesaling) carried out at the location. Prior to 1968-69 the data reported for the annual factory census did not include details of activities other than manufacturing. In addition, even though manufacturing activity at a location was not the predominant activity, the manufacturing data were included in the census.

Data relating to separately-located administrative offices and ancillary units serving the establishment and forming part of the business enterprise owning the establishment are now included in manufacturing statistics. Formerly, manufacturing statistics did not include separately-located establishments such as administrative head offices, storage premises, manufacturers' sales branches or sales offices not holding stocks.

#### Standardisation of Industrial Classification

In 1968-69 the Australian Standard Industrial Classification (ASIC) was introduced to define industries in the economy for statistical purposes, thus permitting the scope of the different economic censuses (one of which is the manufacturing census) to be specified without gaps or overlapping between them.

The main changes in the scope of the manufacturing census, apart from providing for a separate census for electricity and gas, are:

- (i) Establishments engaged mainly in the following activities, previously included in the manufacturing census, are now excluded: motor vehicle repairs but not engine reconditioning; repair and servicing of agricultural machinery; dry-cleaning and clothes dyeing services; watch, clock and jewellery repairing; boot and shoe repairing; tyre retreading and repairing; custom dress-making and tailoring (including clothing repair and alterations); repairing of blinds and awnings, making up of curtains; and repair of domestic appliances. Establishments engaged mainly in these activities are included in the Census of Retail Trade and Selected Services or the Census of Wholesale Trade.
- (ii) Establishments engaged mainly in the following activities, previously excluded in most States from manufacturing censuses, are now included: slaughtering; milk treatment; and publishing.

An indication of the effect of the above changes arising from the adoption of the new industrial classification, can be gained from the following comparison. In the 1967-68 manufacturing census there were approximately 5,300 manufacturing establishments (excluding electricity and gas establishments) in Western Australia. Of these establishments, only approximately 2,500 would have been included in the 1967-68 census if ASIC had been used. This decrease of 2,800 in the number of manufacturing establishments is due to the exclusion from the manufacturing census of the establishments referred to in the preceding paragraph.

### Standardisation of Items of Data

Items of data were standardised for all census sectors with the consequence that in the manufacturing census the 'value of turnover' is now collected instead of value of output at the factory, and instead of the value of materials, fuel, etc. used, purchases and other selected expenses, not previously collected, are included in manufacturing statistics. The underlying concept of 'value added', however, is similar to the former concept 'value of production', even though its method of derivation is different. Value added, the basic measure of the establishment's contribution to total production, is now calculated as turnover less purchases and transfers in (from other establishments of the enterprise), plus increase (or less decrease) in stocks. In the past the corresponding item, value of production, was obtained by deducting the value of materials, fuel, etc. used from the value of output at the factory. A detailed comparison of the method of derivation is shown in the following table.

METHODS OF DERIVATION OF ADDED VALUE

<i>Value of production, 1967-68</i>	<i>Value added, 1968-69 and 1969-70</i>
Selling value at works, exclusive of all delivery costs or charges, of goods manufactured, treated or worked up during the year, including by-products, <i>plus</i>	Sales, and transfers out (to other establishments of the enterprise), of goods manufactured by the establishment, <i>plus</i>
Value of other work done, such as repairing and making up for customers, etc. <i>plus</i>	Sales and transfers out of goods not manufactured by the establishment, <i>plus</i>
Bounties and subsidies on production	Bounties and subsidies on production, <i>plus</i>
<i>Equals: Value of output</i>	All other operating income, <i>plus</i>
<i>Less—</i>	Capital work done for own use, or for rental or lease
Value of materials used	<i>Equals: Value of turnover</i>
Power, fuel and light used	<i>Plus: Value of closing stocks</i>
Water used	<i>Less: Value of opening stocks</i>
Lubricating oils used	<i>Less—</i>
Repairs, etc.	Purchases and transfers in of materials, electricity
Containers used	fuels, containers, etc.
<i>Equals: Value of production</i>	Purchases and transfers in of goods for resale
	Charges for commission and sub-contract work
	Repair and maintenance expenses
	Outward freight and cartage, motor vehicle
	running expenses, sales commission payments
	<i>Equals: Value added</i>

Even though the concept of value added is similar to value of production, direct comparison of 1967-68 and 1968-69 and later figures will not be possible because of the change in census units already mentioned which has resulted in the value added for the whole establishment being reported, not solely the value added for the manufacturing process. Comparison is also affected, of course, by the change in the scope of the manufacturing census due to the adoption of ASIC.

For a more detailed description of the Integrated Economic Censuses reference should be made to pages 552-63 of the 1971 issue of the Year Book or Chapter 31 of the *Official Year Book of the Commonwealth of Australia*, No. 56—1970.

### GENERAL SUMMARY

The next table summarises the operations of manufacturing establishments in all States and Australia during 1968-69 and 1969-70. Succeeding tables provide detailed information on an industry sub-division basis for Western Australia for the same period.

Figures for both years have been extensively revised since the previous issue. Those now shown for the year ended June 1970 are still preliminary and subject to further revision.

**MANUFACTURING ESTABLISHMENTS—AUSTRALIA**  
**SUMMARY OF OPERATIONS ACCORDING TO STATES AND TERRITORIES**

State or Territory	Year	Number of establishments in operation during the year	Employment (including working proprietors) at end of June			Salaries and wages (a)
			Males	Females	Total	
New South Wales	1968-69	13,975	380,471	140,898	521,369	\$'000 1,617,819
	1969-70	14,060	386,377	145,819	532,196	1,790,911
Victoria	1968-69	11,829	303,437	136,994	440,431	1,342,076
	1969-70	11,917	310,497	140,581	451,078	1,501,057
Queensland	1968-69	4,103	90,905	22,785	113,690	309,276
	1969-70	3,977	90,687	23,393	114,080	332,232
South Australia	1968-69	3,085	93,328	22,986	116,314	347,615
	1969-70	3,103	95,473	24,411	119,884	385,686
Western Australia	1968-69	2,713	50,901	11,622	62,523	183,168
	1969-70	2,791	52,274	12,401	64,675	208,410
Tasmania	1968-69	997	25,346	6,743	32,089	95,065
	1969-70	988	25,596	6,930	32,526	102,138
Northern Territory	1968-69	73	861	151	1,012	3,607
	1969-70	69	947	154	1,101	3,935
Australian Capital Territory	1968-69	115	2,161	584	2,745	9,454
	1969-70	116	2,416	656	3,072	11,166
AUSTRALIA	1968-69	36,890	947,410	342,763	1,290,173	3,908,078
	1969-70	37,021	964,267	354,345	1,318,612	4,335,535

State or Territory	Year	Turnover	Stocks (b)		Purchases, transfers in and selected expenses	Value added
			Opening	Closing		
		\$'000	\$'000	\$'000	\$'000	\$'000
New South Wales	1968-69	7,399,194	1,246,864	1,328,442	4,440,022	3,040,750
	1969-70	8,278,585	1,335,576	1,448,315	5,013,277	3,378,043
Victoria	1968-69	6,335,905	1,125,656	1,191,685	3,860,463	2,541,471
	1969-70	6,997,832	1,197,008	1,293,924	4,322,123	2,772,613
Queensland	1968-69	1,868,803	236,453	252,458	1,224,911	659,897
	1969-70	2,034,070	254,685	290,258	1,345,859	723,765
South Australia	1968-69	1,584,233	273,928	303,159	970,385	643,079
	1969-70	1,761,914	301,004	335,902	1,082,994	713,822
Western Australia	1968-69	919,555	119,817	133,185	564,450	368,473
	1969-70	1,028,778	134,775	152,994	626,499	420,499
Tasmania	1968-69	487,109	94,640	104,735	301,739	195,464
	1969-70	545,648	98,922	100,986	316,928	230,793
Northern Territory	1968-69	20,437	1,791	2,241	11,363	9,525
	1969-70	19,345	1,868	2,804	12,117	8,161
Australian Capital Territory	1968-69	31,242	3,303	3,743	16,864	14,819
	1969-70	36,963	3,741	3,439	19,425	17,236
AUSTRALIA	1968-69	18,646,479	3,102,452	3,319,648	11,390,197	7,473,477
	1969-70	20,703,135	3,327,579	3,628,622	12,739,223	8,264,931

(a) Excludes drawings by working proprietors. (b) Closing stocks for 1968-69 and opening stocks for 1969-70 are not equal due to reporting differences on individual returns.

### Location of Secondary Industry

The main concentration of the State's manufacturing establishments, including those situated in the developing industrial complex at Kwinana, is located in the Perth Statistical Division, which contains the greatest population, both in number and density. The adjoining South-West Statistical Division ranks next to the Perth Division in total population and number of manufacturing establishments.

The Perth and South-West Divisions together contain approximately three-quarters of the total population of the State. Other factors influencing the concentration of manufacturing industry in the area are the easier availability of raw materials, the provision of adequate power and fuel supplies and a well-developed road and railway system linked with the State's principal port at Fremantle and the port at Bunbury. Electric power is distributed over most of the area through a grid system established by the State Electricity Commission, further details of which are given in the section *Electricity Generation and Transmission* on page 409. The only coal deposits in the State at present being worked are in the South-West Division near Collie, some 120 miles to the south of Perth.

Reference to manufacturing activity in the several Statistical Divisions of the State is also made in the section *Geographical Distribution of Industry* which appears on pages 330-1. The boundaries of each Statistical Division are shown on the map of the State following the Index. Details of the individual local government areas of which each Statistical Division is composed are given in a list preceding the Index.

### Number of Manufacturing Establishments

In the next table comparisons of the number of manufacturing establishments in Western Australia over a two-year period are made. The figures represent the number of manufacturing establishments which operated for any period during each particular year but do not include numbers of separately-located administrative offices and ancillary units.

MANUFACTURING ESTABLISHMENTS  
ACCORDING TO INDUSTRY SUB-DIVISION (a)

Industry sub-division		Number of establishments in operation during the year	
ASIC code (b)	Description	1968-69	1969-70
21-2	Food, beverages and tobacco ....	491	469
23	Textiles ....	36	35
24	Clothing and footwear ....	76	75
25	Wood, wood products and furniture ....	589	607
26	Paper and paper products, printing ....	189	199
27	Chemical, petroleum and coal products ....	74	78
28	Non-metallic mineral products ....	212	218
29	Basic metal products ....	34	33
31	Fabricated metal products ....	407	450
32	Transport equipment ....	141	150
33	Other machinery and equipment ....	281	285
34	Miscellaneous manufacturing ....	183	192
	Total manufacturing ....	2,713	2,791

(a) Figures revised. (b) Australian Standard Industrial Classification.

### Employment

Details of the number of persons employed in Western Australia in manufacturing appearing in the following table relate to working proprietors at the end of June and employees on the pay-roll at the last pay-period in June. The numbers include those working at separately-located administrative offices and ancillary units in the State, even though the administrative offices or ancillary units may have served establishments located in another State.

The largest volume of employment was provided in the industry sub-division Food, beverages and tobacco with a total of 12,846 persons at the end of June 1970. The next largest employers of labour were the sub-divisions Wood, wood products and furniture, and Fabricated metal products, each of which accounted for over 8,000 persons at the same date.

#### EMPLOYMENT ACCORDING TO INDUSTRY SUB-DIVISION (a)

Industry sub-division		Employment (including working proprietors) at end of June					
ASIC code (b)	Description	1969			1970		
		Males	Females	Total	Males	Females	Total
21-22	Food, beverages and tobacco ....	8,814	3,665	12,479	8,918	3,928	12,846
23	Textiles ....	541	342	883	598	360	958
24	Clothing and footwear ....	357	1,636	1,993	348	1,617	1,965
25	Wood, wood products and furniture ....	7,227	1,009	8,236	7,327	1,064	8,391
26	Paper and paper products, printing ....	3,858	1,347	5,205	4,161	1,513	5,674
27	Chemical, petroleum and coal products ....	2,887	394	3,281	2,950	414	3,364
28	Non-metallic mineral products ....	4,671	479	5,150	4,776	546	5,322
29	Basic metal products ....	4,051	197	4,248	4,150	256	4,406
31	Fabricated metal products ....	7,312	1,049	8,361	7,597	1,121	8,718
32	Transport equipment ....	4,582	181	4,763	4,618	217	4,835
33	Other machinery and equipment ....	5,424	787	6,211	5,537	802	6,339
34	Miscellaneous manufacturing ....	1,177	536	1,713	1,294	563	1,857
	Total manufacturing ....	50,901	11,622	62,523	52,274	12,401	64,675

(a) Figures revised.

(b) Australian Standard Industrial Classification.

#### Salaries and Wages

The following table shows, for 1968-69 and 1969-70, the amounts of salaries and wages paid to all employees of manufacturing establishments in Western Australia including those working at separately-located administrative offices and ancillary units in the State. The figures do not include amounts drawn by working proprietors.

#### SALARIES AND WAGES PAID ACCORDING TO INDUSTRY SUB-DIVISION (a)

(Excludes amounts drawn by working proprietors)

(\$'000)

Industry sub-division		1968-69	1969-70
ASIC code (b)	Description		
21-2	Food, beverages and tobacco ....	33,723	40,227
23	Textiles ....	2,241	2,451
24	Clothing and footwear ....	3,429	3,553
25	Wood, wood products and furniture ....	21,283	23,286
26	Paper and paper products, printing ....	16,092	18,647
27	Chemical, petroleum and coal products ....	12,342	13,861
28	Non-metallic mineral products ....	16,939	19,469
29	Basic metal products ....	15,677	17,340
31	Fabricated metal products ....	24,029	28,391
32	Transport equipment ....	13,567	15,236
33	Other machinery and equipment ....	19,753	21,293
34	Miscellaneous manufacturing ....	4,095	4,655
	Total manufacturing ....	183,168	208,410

(a) Figures revised.

(b) Australian Standard Industrial Classification.

#### Turnover

The value of turnover of Western Australian manufacturing establishments in 1968-69 and 1969-70 is given in the following table. The figures include sales of goods whether produced by the establishment or not, plus transfers out of goods to other establishments of the same enterprise, plus bounties and subsidies on production, plus all other operating revenue from outside the enterprise (such as commission, repair, and service revenue), plus capital work done for own use, or for rental or lease. Receipts from rent, leasing, interest (other than hire purchase), royalties and the sale of fixed tangible assets are excluded.

TURNOVER (a)  
 ACCORDING TO INDUSTRY SUB-DIVISION (b)  
 (\$'000)

Industry sub-division		1968-69	1969-70
ASIC code (c)	Description		
21-2	Food, beverages and tobacco ....	224,284	252,224
23	Textiles ....	10,413	10,261
24	Clothing and footwear ....	9,164	8,990
25	Wood, wood products and furniture ....	84,023	93,051
26	Paper and paper products, printing ....	54,437	62,219
27	Chemical, petroleum and coal products ....	93,147	93,293
28	Non-metallic mineral products ....	76,458	90,120
29	Basic metal products ....	120,322	137,831
31	Fabricated metal products ....	97,774	114,271
32	Transport equipment ....	58,844	71,365
33	Other machinery and equipment ....	75,241	76,203
34	Miscellaneous manufacturing ....	15,449	18,951
	Total manufacturing ....	919,555	1,028,778

(a) See letterpress immediately preceding table. (b) Figures revised.  
 (c) Australian Standard Industrial Classification

### Purchases, Transfers In and Selected Expenses

The following table gives details of the value of purchases, transfers in and selected expenses for Western Australia in 1968-69 and 1969-70. The figures include purchases of materials, fuel, power, containers, etc., plus transfers in of goods from other establishments of the enterprise, plus charges for commission and sub-contract work, repair and maintenance expenses, outward freight and cartage, motor vehicle running expenses and sales commission payments.

PURCHASES, TRANSFERS IN AND SELECTED  
 EXPENSES ACCORDING TO INDUSTRY SUB-DIVISION (a)  
 (\$'000)

Industry sub-division		1968-69	1969-70
ASIC code (b)	Description		
21-2	Food, beverages and tobacco ....	158,572	174,599
23	Textiles ....	6,361	6,092
24	Clothing and footwear ....	4,282	4,307
25	Wood, wood products and furniture ....	44,718	48,229
26	Paper and paper products, printing ....	24,936	29,141
27	Chemical, petroleum and coal products ....	56,162	54,565
28	Non-metallic mineral products ....	37,536	46,085
29	Basic metal products ....	86,758	92,658
31	Fabricated metal products ....	55,489	66,336
32	Transport equipment ....	36,816	47,580
33	Other machinery and equipment ....	44,507	46,413
34	Miscellaneous manufacturing ....	8,313	10,495
	Total manufacturing ....	564,450	626,499

(a) Figures revised. (b) Australian Standard Industrial Classification.

### Stocks

Statistics on the value of stocks in Western Australia for each of the years 1968-69 and 1969-70 are given in the following table. The figures include all stocks of materials, fuels, etc., work-in-progress and finished goods, whether of own manufacture or purchased for resale, owned by manufacturing establishments whether held at the establishment or at separate locations. Closing stocks for 1968-69 and opening stocks for 1969-70 are not equal due to reporting differences on individual returns.

**STOCKS ACCORDING TO INDUSTRY SUB-DIVISION (a)**  
(\$'000)

Industry sub-division		Year	Opening stocks (c)	Closing stocks (c)
ASIC code (b)	Description			
21-2	Food, beverages and tobacco ....	1968-69 1969-70	17,348 19,210	19,006 19,808
23	Textiles ....	1968-69 1969-70	2,082 1,981	2,161 2,357
24	Clothing and footwear ....	1968-69 1969-70	1,081 1,246	1,226 1,381
25	Wood, wood products and furniture ....	1968-69 1969-70	12,675 13,917	14,190 14,496
26	Paper and paper products, printing ....	1968-69 1969-70	6,477 6,947	6,781 7,933
27	Chemical, petroleum and coal products ....	1968-69 1969-70	19,505 19,202	18,965 18,813
28	Non-metallic mineral products ....	1968-69 1969-70	6,885 8,017	8,211 10,734
29	Basic metal products ....	1968-69 1969-70	17,616 22,871	22,388 29,082
31	Fabricated metal products ....	1968-69 1969-70	14,273 15,953	15,713 18,123
32	Transport equipment ....	1968-69 1969-70	6,281 7,424	6,946 9,799
33	Other machinery and equipment ....	1968-69 1969-70	13,584 15,591	15,345 17,767
34	Miscellaneous manufacturing ....	1968-69 1969-70	2,010 2,417	2,253 2,702
	Total manufacturing ....	1968-69 1969-70	119,817 134,775	133,185 152,994

(a) Figures revised, (b) Australian Standard Industrial Classification, (c) Closing stocks for 1968-69 and opening stocks for 1969-70 are not equal due to reporting differences on individual returns.

### Value Added

The statistics on value added appearing in the following table have been calculated by adding to the value of turnover, the increase (or deducting the decrease) in the value of stocks, and deducting the value of purchases, transfers in and selected expenses. A more detailed description of the method of deriving value added is given on page 401.

**VALUE ADDED ACCORDING TO  
INDUSTRY SUB-DIVISION (a)**  
(\$'000)

Industry sub-division		1968-69	1969-70
ASIC code (b)	Description		
21-2	Food, beverages and tobacco ....	67,371	78,224
23	Textiles ....	4,131	4,545
24	Clothing and footwear ....	5,027	4,818
25	Wood, wood products and furniture ....	40,819	45,401
26	Paper and paper products, printing ....	29,805	34,064
27	Chemical, petroleum and coal products ....	36,444	38,340
28	Non-metallic mineral products ....	40,248	46,753
29	Basic metal products ....	38,336	51,384
31	Fabricated metal products ....	43,726	50,105
32	Transport equipment ....	22,693	26,161
33	Other machinery and equipment ....	32,494	31,965
34	Miscellaneous manufacturing ....	7,379	8,741
	Total manufacturing ....	368,473	420,499

(a) Figures revised, (b) Australian Standard Industrial Classification.

It should be noted that while value added is the basic measure of an industry's contribution to total production it must not be inferred that when salaries and wages are deducted from value added, the whole of the surplus is available for profit. There are many miscellaneous expenses such as depreciation, workers' compensation insurance, other insurance, pay-roll tax, income tax, rates, advertising, interest on borrowed funds, bad debts and other sundry charges which are not taken into account in arriving at value added.

## INDIVIDUAL INDUSTRIES

This section deals with manufacturing activity in selected industries in Western Australia over recent years. Details of production of selected commodities are given in the table on page 409.

### **Lime, Plaster and Plaster Sheets**

The number of establishments engaged in the industry has decreased over recent years and production has fluctuated somewhat in the ten-year period between 1962-63 and 1971-72. Maximum production during the period was 2.2 million square yards in 1969-70 which has since declined to 1.7 million square yards in 1971-72.

Most of the factories in this industry are situated in the Perth Statistical Division but some smaller plasterboard manufacturers operate in major country centres such as Bunbury, Geraldton, Kalgoorlie and Esperance.

### **Cement and Concrete Products**

There are two producers of cement in the State and one producer of asbestos cement products including sheets, pipes and mouldings. A large number of establishments producing other cement products such as concrete bricks, blocks, tiles, pipes, culverts and curbing are also classified to the industry. Ready-mixed concrete is produced in large quantities in country areas as well as in the Perth Statistical Division.

### **Clay Products and Refractories**

In 1971-72 Western Australian production of clay bricks was 229 million which, *per capita*, was higher than any other State.

Other items of production in the industry include terracotta tiles, earthenware pipes, sanitary ware, refractory bricks and tableware.

### **Chemical Fertilisers**

Chemical fertiliser factories are established in country centres as well as the Perth Statistical Division, plants being operated at Picton Junction, Albany, Geraldton and Esperance to meet the requirements of adjacent farm regions.

The industry produces all of the sulphuric acid required for superphosphate manufacture and smaller amounts of hydrochloric, phosphoric and nitric acids. Substantial quantities of mixed chemical fertilisers are also produced.

### **Basic and Fabricated Metal Products, Machinery and Equipment**

Approximately one-third of the factories in Western Australia are engaged in the production of metals and metal products, and the repair of such products. Goods produced by these factories range from basic metal products such as pig-iron and iron ore pellets, rolled steel products and wire to electrical consumer goods such as refrigerators. Tractors, agricultural machinery and railway rolling stock are also produced. These factories are located principally in the Perth Statistical Division, the Kwinana area becoming increasingly important.

### **Flour Milling**

There has been an overall decline in activity in the flour milling industry over recent years due mainly to a decrease in export demand. In 1962-63 production of flour, including quantities used to make self-raising flour, amounted to almost 136 thousand short

tons, whereas in 1971-72 only 92 thousand short tons were produced. Despite partial recoveries from time to time, a general decline in production has occurred since 1952-53 when the post-war peak production of 224 thousand short tons was achieved. Production data for bran and pollard show similar trends over recent years.

### **Bacon Curing**

As well as producing bacon and ham, factories classified to this industry also manufacture substantial quantities of smallgoods and, as by-products, smaller quantities of meat and bone meal, lard and tallow. Bacon and ham production, including small amounts produced by factories classified to other industries, has risen from 8·6 million lb in 1962-63 to 14·3 million lb in 1971-72, an increase in quantity of 66 per cent.

All of the factories classified to this industry are situated in the Perth Statistical Division.

### **Milk Products—Butter, Cheese and Ice Cream**

Most of the factories in this industry are situated in the Perth, South-West and Southern Agricultural Statistical Divisions.

Butter production declined from a peak of 18·1 million lb in 1965-66 to 12·0 million lb in 1970-71. In 1971-72 production increased to 13·2 million lb.

The quantity of cheese produced has fluctuated over the past ten years with a peak of 4·5 million lb being reached in 1968-69. In 1971-72, 4·2 million lb of cheese were produced.

An increase in ice cream production has occurred in each of the last six years, with new producers commencing operations, and in 1971-72 production totalled 3·6 million gallons.

### **Soft Drinks, Cordials and Syrups**

The major part of the production of aerated waters and cordials is carried out in the Perth Statistical Division, country factories accounting for less than 10 per cent of the total production of aerated waters.

Production of aerated waters, including small amounts produced by factories classified to other industries, has risen from 5·7 million gallons in 1962-63 to a peak of 15·0 million gallons in 1971-72.

Although fluctuations from year to year have been evident, production of cordials and syrups has also increased and in 1971-72 reached a peak of 1·4 million gallons.

### **Sawmilling**

Although the majority of the log-sawing mills are located in the South-West Statistical Division there are many, including some of the larger mills, operating in the Perth Statistical Division. There is also some activity in the Southern Agricultural and Central Agricultural Divisions but, in general, the mills in these areas are small in size.

Production of sawn timber (including plywood veneers and railway sleepers) has fluctuated over the ten years to 1971-72. In that year production amounted to 172·5 million superficial feet and comprised 162·8 million superficial feet from hardwoods and 9·7 million superficial feet from softwoods.

## **ARTICLES PRODUCED**

The following table lists some of the principal products of secondary industry in the State and shows the quantities produced in each of the five years from 1967-68 to 1971-72. Production of many items is confidential as the Acts under which the statistics are collected require that information supplied on any individual return must be treated as confidential. For this reason it has not been possible to publish some items and consequently the list is incomplete and should not be regarded as an assessment of factory development as a whole.

## PRODUCTION OF SELECTED COMMODITIES (a)

Commodity	Unit	1967-68	1968-69	1969-70	1970-71	1971-72
Aerated waters (b) ....	'000 gal	9,831	10,856	12,847	14,244	15,011
Bacon and ham ....	'000 lb	11,404	12,133	12,855	13,622	14,306
Bath heaters—solid fuel ....	number	4,556	4,342	3,810	3,587	2,873
Batteries—automotive (c)						
6 volt ....	number	9,745	9,582	7,538	8,306	8,739
12 volt ....	number	29,582	18,785	14,812	17,052	24,289
Boots, shoes and sandals (d) ....	pair	906,726	780,248	702,932	646,729	583,566
Bran ....	ton (2,000 lb)	20,976	19,952	19,200	20,098	17,036
Bread (2 lb loaf) (e) ....	'000	61,335	(f)	(f)	(f)	(f)
Bricks—clay (all sizes) ....	'000	207,575	274,318	284,256	240,323	228,942
Butter ....	'000 lb	13,248	(g) 13,937	(g) 13,014	(g) 11,959	(g) 13,178
'Cheese ....	'000 lb	4,373	(g) 4,458	(g) 3,787	(g) 4,226	(g) 4,223
'Coats—sports—men's and youths' ....	number	821	664	553	478	445
Cordials and syrups ....	gallon	509,980	584,633	771,917	969,880	1,365,355
Electricity generated (government) ....	'000 kWh	1,672,750	1,902,158	2,192,301	2,445,972	2,670,980
Fibrous plaster sheets ....	'000 sq yd	1,954	2,030	2,147	1,857	1,749
Flour—						
Plain (h) ....	ton (2,000 lb)	110,692	108,140	103,727	106,275	92,243
Self-raising ....	cwt	66,111	(f)	(f)	(f)	(f)
Gas available for issue through mains	'000 therms	8,536	9,556	10,576	11,771	111,321
Hot water systems—domestic (i)—						
Electric ....	number	8,396	10,237	11,800	11,239	9,513
Other ....	number	10,636	10,651	10,314	10,145	11,211
Ice cream ....	'000 gal	2,819	3,118	3,531	3,612	3,624
Jelly crystals ....	lb	934,435	(f)	(f)	(f)	(f)
Macaroni, spaghetti, vermicelli ....	cwt	12,916	(f)	(f)	(f)	(f)
Mattresses—soft-filled (j) ....	number	61,599	49,233	51,526	54,951	51,216
Paints—architectural, decorative and industrial (k) ....	gallon	(l)	(l)	(l)	1,120,221	1,027,541
Pickles and chutney ....	pint	390,288	(f)	(f)	(f)	(f)
Plaster of paris ....	ton	24,960	29,316	32,951	28,887	30,087
Pollard ....	ton (2,000 lb)	16,996	16,716	15,931	15,330	14,485
Powdered milk ....	'000 lb	6,010	7,394	7,549	8,511	10,979
Pyjama suits—woven fabric—men's, youths' and boys' ....	dozen	9,028	9,782	8,964	7,456	7,148
Ready-mixed concrete ....	cu yd	727,868	(f)	(f)	1,271,724	1,185,945
Sauce (all types) ....	pint	170,171	(f)	(f)	(f)	(f)
Shirts (all types)—men's, youths' and boys' ....	dozen	63,153	65,209	66,288	63,052	69,800
Shorts and knickers—men's, youths' and boys' (m) ....	number	458,943	415,858	378,484	393,950	417,927
Sleepers, railway—sawn ....	'000 sup. ft	48,691	26,733	32,366	40,401	31,798
Slippers ....	pair	125,580	102,259	97,823	126,009	110,361
Soap and soap substitutes (including detergents) ....	cwt	75,202	81,277	91,071	104,854	116,384
Steel, constructional—fabricated ....	ton	73,703	(f)	(f)	(f)	(f)
Stock and poultry foods—meat and bone meal ....	cwt	370,548	404,625	541,093	524,878	670,881
Suits, men's and youths'—2 and 3 piece ....	number	9,327	8,705	7,492	6,270	5,516
Tallow (raw and refined) (n) ....	cwt	339,591	(f)	(f)	(f)	(f)
Timber (from local logs)—sawn (o) ....	'000 sup. ft	211,726	188,294	190,845	190,265	172,474
Tyres, retreaded and recapped ....	number	219,501	(f)	(f)	(f)	(f)
Vinegar (including bulk) ....	gallon	148,687	(f)	(f)	(f)	(f)
Wire—barbed ....	ton	1,713	1,597	1,797	1,256	1,400
Wool—scoured ....	tonne (p)	12,662	14,385	14,930	10,724	16,411

(a) Some major items of production are not available for publication. Figures include quantities produced and used in own works. (b) Canned and bottled only (excludes bulk). (c) Includes rebuilt batteries. (d) Excludes sandshoes, rubber thongs and other footwear wholly of rubber. (e) Includes loaves other than 2 lb size and bread rolls, etc. in terms of 2 lb loaf equivalent. (f) Not available at time of publication. (g) Source: Commonwealth Dairy Produce Equalisation Committee Limited. (h) Includes atta flour and quantities used for making self-raising flour. (i) Excludes solar absorber units. (j) Includes rubber, plastic foam and sponge. (k) New series; excludes water paints in powder form, stains and thinners. (l) Not available. (m) Excludes suit shorts and swim shorts. (n) Includes dripping. (o) Includes railway sleepers (see separate item above) and plywood veneers. (p) 1 tonne = 1,000 kilograms. 1 kg = 2.2 lb approximately.

## ELECTRICITY AND GAS

The electricity and gas industries, which were included in the annual factory census prior to 1968-69, are now the subject of a separate census. In addition, the electricity and gas census has been extended to cover distribution as well as production. A table showing census data for both 1968-69 and 1969-70 appears on page 411, while details of production of electricity and gas over the five years to 1971-72 are included in the table above.

## Electricity Generation and Transmission

Prior to the establishment of The State Electricity Commission of Western Australia in 1946, electricity was generated and distributed by a large number of independent power stations. A government-owned steam power station at East Perth supplied the metropolitan area, and small units of the same type, but privately-owned, operated in the major mining centres of Collie and Kalgoorlie. With other minor exceptions the country areas were

dependent on internal combustion equipment, owned privately or by local government authorities and supplying either alternating or direct current at various voltages. Since 1946 a number of power stations have been absorbed into the Commission's network and, although there are still some independent operators generating electricity for sale or for their own industrial requirements, the Commission now supplies most of the electricity used in the State and all electricity sold in the metropolitan area. The Commission functions under the *State Electricity Commission Act, 1945-1971* and consists of nine members, including the Chairman, appointed by the Governor. Four of the Commissioners are representatives of consumers, one for the metropolitan area, two for the rest of the State and one representing commercial consumers. Of the remaining five, one is the Under Treasurer of the State or his deputy, one represents employees of the Commission and three are required to be qualified engineers.

In Western Australia electricity is generated principally by steam power stations although in areas remote from the interconnected grid system operated by the Commission, internal combustion equipment is mostly used to provide electricity. The Commission operates oil-burning power stations at East Perth (55 MW), South Fremantle (100 MW) and Kwinana (240 MW) in the metropolitan area, and these stations are interconnected in a grid system with coal-burning country power stations at Bunbury (120 MW) and Muja (240 MW).

Present planning by the Commission provides for increasing the capacity of the Kwinana power station by two 120 MW units by July 1973 and two 200 MW units by 1976.

The main interconnections are two 132,000 volt transmission lines from the Bunbury power station and two 132,000 volt lines from the Muja power station to terminal substations in the metropolitan area, and a 132,000 volt line from Muja to the Bunbury power station. A 132,000 volt transmission system linking substations is being provided to meet the increasing demand for power in the metropolitan area.

In December 1959 an amendment to the State Electricity Commission Act was passed to enable consumers to contribute towards the extension of mains beyond the distance that can be supplied economically by the Commission. At 30 June 1972 some 10,000 consumers had been connected in country and metropolitan areas under this Contributory Extension Scheme.

Minor systems which are privately-owned or controlled by local government authorities are being absorbed as the transmission lines extend into the country areas and when this work is completed all except the more sparsely-populated areas of the State will be provided with electric power of standard frequency and voltage.

### **Town Gas Production**

Town gas production in Western Australia ceased on 3 August 1972 with the completion of the conversion of town gas appliances to burn natural gas from the gasfields in the region of Dongara and Gingin to the north of Perth. These natural gasfields have been proved to have sufficient reserves to supply an industrial and domestic market for at least fifteen years at a daily rate of between 70 and 80 million cubic feet.

Simulated natural gas is now being produced at Albany and Bunbury by the State Electricity Commission.

Details of the amount of gas available for issue through mains in the five years ended 1971-72 appear in the table on page 409.

### **Electricity and Gas Censuses, 1968-69 and 1969-70**

For electricity and gas, the basic census unit is an exception to the general concept of the standardised unit. Because of the nature of the activities of electricity and gas undertakings, the single operating location basis is not suitable. The establishment unit used consists of all locations, including administrative offices and ancillary units, concerned mainly with the production and/or distribution of electricity or gas, operated by the undertaking in the one State. The use of this concept is one of the reasons for the number of electricity and gas establishments in 1968-69 being considerably less than in previous

years. The other main reason is that, until 1967-68, a number of electricity generating stations operated by enterprises principally for their own use were included. From 1968-69, however, these generating stations are included in the electricity census only if sales and transfers of electricity exceed \$100,000 in value.

## ELECTRICITY AND GAS ESTABLISHMENTS (a) : SUMMARY OF OPERATIONS (b)

Year	Number of establishments in operation during the year	Employment (including working proprietors) at end of June			Salaries and wages	Turnover	Stocks		Purchases, transfers in and selected expenses	Value added
		Males	Females	Total			Opening	Closing		
1968-69	59	3,447	264	3,711	\$m 12.5	\$m 50.8	\$m 5.1	\$m 6.0	\$m 15.1	\$m 36.7
1969-70	57	3,598	291	3,889	14.8	61.5	6.2	6.9	18.1	44.2

(a) Covers production and distribution.

(b) Figures revised.

## DEPARTMENT OF DEVELOPMENT AND DECENTRALISATION

At the end of the first World War the State Government, with the object of fostering secondary industry, established a Council of Industrial Development. This was succeeded by the Department of Industrial Development and in March 1971 the name was changed to the Department of Industrial Development and Decentralisation.

In November 1971 the State's Co-ordinating and Planning Authority, the Department of Industrial Development and Decentralisation and the North-West Department were integrated in a new Department of Development and Decentralisation.

The Department now consists of two divisions, Development and Industries.

The *Division of Development* has the function of planning State development including planning for major industrial development and the provision of suitable sites and services for the transport, water, sewerage, drainage, power, port, housing, education, police, medical and other requirements of expanding industries. It also co-ordinates the provision, by appropriate Government departments and instrumentalities, of capital works required for the above purposes.

The *Division of Industries* carries out broadly the functions of the former Department of Industrial Development and Decentralisation in assisting the expansion of existing secondary industries, encouraging exports, and the general promotion of Western Australian trade and industry. The Division is at the disposal of intending investors requiring advice on such matters as finance and accounting, market research, production problems and the availability of labour.

In certain circumstances, financial assistance, by way of direct loan or guarantee of a loan may be granted under the *Industry (Advances) Act, 1947-1961* to industries which are unable to obtain sufficient capital from normal sources to commence or expand operations.

The Department establishes and maintains a close liaison with industry and with Government departments responsible for the provision of services, information and finance. In all its activities particular emphasis is placed on the attraction of industry into decentralised areas.

## CHAPTER IX—TRADE, TRANSPORT AND COMMUNICATION

### Part 1—External Trade<sup>(1)</sup>

#### Constitutional Provisions and Legislation

By the Commonwealth of Australia Constitution Act, section 51 (1), the power to make laws with respect to trade and commerce with other countries was conferred on the Commonwealth Parliament. Under section 86 of the Constitution, the collection and control of customs and excise passed to the Executive Government of the Commonwealth on 1 January 1901.

Commonwealth legislation affecting overseas trade includes the Customs Act, the Customs Tariff and the Customs Tariff (Dumping and Subsidies) Act. The Customs Act is the administrative Act under which the Department of Customs and Excise operates. The Customs Tariff provides the statutory authority for imposing the actual rates of duty operative from time to time, while the Customs Tariff (Dumping and Subsidies) Act provides protection for Australian industry against various forms of unfair trading.

The *Tariff Board Act* 1921-1971 constitutes a Tariff Board of nine members to advise the Government on matters relating to the protection and encouragement of Australian industry and on the general effect of the working of the Customs and Excise Tariffs. The Tariff Board conducts public hearings in connection with any revision of the Tariff, proposals concerning bounties, or complaints that a manufacturer is taking undue advantage of the protection afforded by the Tariff.

### ENCOURAGEMENT OF OVERSEAS TRADE

#### Trade Agreements

The General Agreement on Tariffs and Trade (G.A.T.T.), of which Australia is an original member, came into force on 1 January 1948. It is a multilateral trade treaty designed to facilitate trading relations between participating countries by reducing tariff and other barriers to the free exchange of goods.

Features of the Agreement are the schedules of tariff concessions which its members have agreed to apply consequent to tariff negotiations with each other, the application of most-favoured-nation treatment among its members, the avoidance of trade discrimination, and a code of agreed commercial policy rules for international trading. Six main tariff negotiations have been conducted, as a result of which Australia has obtained tariff concessions from individual countries on a number of its principal or potential exports to them.

Australia also has numerous bilateral trade agreements with overseas countries which include the United Kingdom, Canada, New Zealand, Japan, and the Union of Soviet Socialist Republics.

For further details of these bilateral trade agreements and the General Agreement on Tariffs and Trade, the reader is referred to the *Official Year Book of the Commonwealth of Australia*.

#### Trade Services

**Trade Commissioner Service.** The stimulation of interest abroad in Australia's exports is an important government activity in which the Australian Trade Commissioner Service plays a prominent part. The Service is administered by the Department of Overseas

<sup>(1)</sup> A brief account of the historical development of the external trade of Western Australia from 1829 is given in the *Western Australian Year Book*, No. 6—1967 and in all issues of the *Official Year Book of Western Australia*, No. 1—1957 (*New Series*) to No. 5—1965.

Trade and is responsible for overseas commercial intelligence. Particular facilities offered to Australian exporters and export organisations include market surveys, advice on selling and advertising methods, arranging introductions with buyers and agents, providing reports on the standing of overseas firms, assisting business visitors and organising trade missions, trade displays and other publicity and promotion media.

In some countries, Trade Commissioners participate in inter-governmental negotiations on economic and commercial matters. A Trade Commissioner may also be called upon to act as the Australian Government representative in those countries where there is no Australian diplomatic or consular mission.

In 1957 Australia's official commercial representation was extended by the introduction of a system of Trade Correspondents. These correspondents, who are appointed in countries where there is no Trade Commission, are engaged on a part-time basis and operate under the general direction of the Trade Commissioner in whose area they are located.

**Trade Missions.** Since 1954 the Australian Government has sent a number of trade missions abroad as part of the campaign to increase exports. In this they have proved successful, for the trade missions, which may be of the survey or selling type, have been directly responsible for substantial and permanent increases in export earnings.

A survey mission is designed to carry out a survey of a particular area, obtain market information, and assess the market potential for Australian products or specific commodities. For a selling mission, arrangements are made for specific industries or groups of firms representing a number of industries to participate in a planned selling campaign in overseas markets with known sales potential. The mission visits the area, publicises its products and negotiates sales.

### **Export Payments Insurance Corporation**

The *Export Payments Insurance Corporation Act* 1956 established the Corporation with the objective of protecting Australian exporters against risks of loss arising from non-payment of their overseas accounts. The main risks of loss against which the Corporation insures are the 'commercial' risks of the insolvency or protracted default of the buyer, and 'political' risks, such as war or cancellation of a valid import licence. More recently, in 1965, the scope of the Corporation was widened to include the ability to insure Australian investments in overseas countries against, broadly, three types of 'political' risks: expropriation; inability to transfer currencies; and damage as the result of war or insurrection.

### **Export Incentives**

The Commonwealth Government provides taxation rebates as financial incentives to export. A special income tax allowance for export market development expenditure is designed to encourage firms to incur promotion expenditure in advance of export sales and to assist exporters and potential exporters to expand sales in existing markets and to enter new overseas markets. Grants may also be made under the provisions of the *Export Incentive Grants Act* 1971.

## **CLASSIFICATION AND VALUATION OF TRADE**

### **Sources of Statistics**

Overseas trade statistics are compiled from documents obtained under the Customs Act and supplied to the Commonwealth Bureau of Census and Statistics by the Department of Customs and Excise. Particulars of Western Australia's overseas trade, as presented in this Part, have been prepared from tabulations furnished by the Commonwealth Bureau of Census and Statistics, Canberra.

Statistics of Western Australia's trade with other Australian States are compiled by the Western Australian Office of the Bureau of Census and Statistics from information contained in documents collected under authority of the *Census and Statistics Act 1905-1966* from importers, exporters, and other persons concerned with the distribution of goods.

### Classification of Commodities

Overseas trade statistics for years up to and including 1964-65 were compiled according to a Statistical Classification of Imports and Exports which, in 1964-65, contained approximately 3,700 items of import and 1,300 items of export.

On 1 July 1965 a new Australian Customs Tariff was introduced. The nomenclature used in the Tariff is that of the Convention on Nomenclature for the Classification of Goods in Customs Tariffs, an international agreement signed at Brussels on 15 December 1950. The system of naming established by the Convention has come to be known as the 'Brussels Nomenclature'.

From 1 July 1965, imports into Australia have been classified according to an *Australian Import Commodity Classification* of some 5,000 items based on the *United Nations Standard International Trade Classification, Revised*, which closely follows the Brussels tariff nomenclature.

Although the basis of the classification of exports remained unchanged for 1965-66, the export section of the Statistical Classification of Imports and Exports was published separately, with some minor revisions, as the *Australian Export Commodity Classification*. A new Australian Export Commodity Classification of some 2,000 items, based on the Standard International Trade Classification, was introduced on 1 July 1966.

The Standard International Trade Classification consists of 10 broad commodity categories designated 'Sections' and comprising 56 commodity 'Divisions' which are further divided into 177 commodity 'Groups'. The structure of the classification serves to provide a summary of data relating to 1,312 basic items of international trade.

For the purpose of recording details of Western Australia's trade with other Australian States, a revised Interstate Trade Classification based on the new Australian Commodity Classifications, has been prepared in the Western Australian Office of the Bureau. In compiling this document, the basic items of the Australian Classifications have been compressed or expanded, according to their significance in Western Australia's trade. The Interstate Trade Classification comprises some 860 items of import and 370 items of export within the structure of commodity Sections, Divisions and Groups referred to previously. The revised Interstate Trade Classification was first used in compiling details of Western Australia's trade with other Australian States in respect of the year 1965-66.

The commodity descriptions appearing in some of the tables in this Part are, in some cases, abbreviations of the full text, which is available in the *Australian Import Commodity Classification* and the *Australian Export Commodity Classification*.

### Valuation of Items of Trade

All values in overseas trade statistics are determined on a 'free on board (f.o.b.) port of shipment' basis. This means that all charges, in particular the cost of freight and insurance, incurred after the goods have been exported from the port of shipment are excluded. Only transport and service charges incurred, or usually incurred, prior to export are included in the determination of trade values.

The procedure adopted to value overseas exports and imports is as follows.

*Exports.* The recorded value of goods exported includes the cost of containers and outside packages and is determined as follows.

- (a) Goods sold to overseas buyers before export are valued at the Australian f.o.b. port of shipment equivalent of the actual price at which the goods were sold.
- (b) Goods shipped on consignment are valued at the Australian f.o.b. port of shipment equivalent of the price paid for similar goods of Australian origin in the principal markets of the country to which they are dispatched for sale.

*Imports.* The recorded value of goods imported is the amount on which duty is payable or would be payable if the duty were *ad valorem*. Value for duty is the f.o.b. port of shipment equivalent of either:

- (a) the actual price paid or to be paid by the Australian importer plus any special deduction (transactions value); or
- (b) 'the current domestic value' of the goods in the country of origin; whichever is the higher.

The basis of valuation for exports to other Australian States is f.o.b., or its equivalent, at the point of final shipment.

Statistics of imports from other Australian States are recorded in terms of landed cost.

### SUMMARY OF TRADE

Statistics of Western Australia's external trade are presented in the following series of tables. Particulars relate, in all cases, to the year ended 30 June. The figures shown for exports do not include ships' stores, details of which are given in the table on page 427.

#### VALUE OF INTERSTATE AND OVERSEAS TRADE OF WESTERN AUSTRALIA (\$'000)

Direction of trade	1966-67	1967-68	1968-69	1969-70	1970-71
<b>INTERSTATE—</b>					
Imports ....	474,852	527,052	562,312	640,189	726,778
Exports ....	116,030	124,505	149,892	149,861	151,093
Excess of—					
Imports over exports ....	358,822	402,547	412,421	490,328	575,685
<b>OVERSEAS—</b>					
Imports ....	159,390	206,980	203,533	242,299	278,344
Exports ....	421,325	475,260	546,366	675,027	862,421
Excess of—					
Exports over imports ....	261,935	268,280	342,833	432,728	584,077
<b>TOTAL—</b>					
Imports ....	634,242	734,031	765,846	882,487	1,005,122
Exports ....	537,355	599,765	696,258	824,888	1,013,514
Excess of—					
Imports over exports ....	96,887	134,266	69,588	57,600	....
Exports over imports ....	....	....	....	....	8,392

### DIRECTION OF TRADE

The term *Country of Origin*, as used in recording the statistics of overseas trade, means the country of production; *Country of Destination* means the country to which goods were consigned at the time of export. In compiling statistics of Western Australia's interstate imports and exports, goods are classified according to the State or Territory from which or to which they were consigned.

In the next table details of the value of imports into and exports from Western Australia during the period 1968-69 to 1970-71 are classified according to origin or destination. The value of imports from other Australian States accounted for 72·7 per cent of the total value of imports during the three-year period. Exports to overseas countries represented 82·2 per cent of the total value of exports. Overseas imports during the period were valued at \$724 million, the principal countries of origin being the United Kingdom (20·1 per cent of the total), the United States of America (18·9 per cent), and Japan 15·7 per cent). The value of overseas exports amounted to \$2,084 million and the principal countries of destination were Japan (46·3 per cent), the United States of America (9·80 per cent), and the United Kingdom (7·17 per cent).

Quarterly statistics of Western Australia's trade with other Australian States and with overseas countries are published regularly in the *Quarterly Statistical Abstract*. Annual statistics, in greater detail, appear in mimeographed publications and the printed publication *Statistics of Western Australia—Trade*. These publications are compiled and issued by the Western Australian Office of the Commonwealth Bureau of Census and Statistics.

## IMPORTS AND EXPORTS

VALUE OF IMPORTS INTO AND EXPORTS FROM WESTERN AUSTRALIA  
CLASSIFIED ACCORDING TO ORIGIN OR DESTINATION  
(\$'000)

Origin or destination	Imports			Exports		
	1968-69	1969-70	1970-71	1968-69	1969-70	1970-71
<b>INTERSTATE—</b>						
New South Wales (a) ....	237,753	269,987	315,196	54,692	53,669	53,622
Victoria ....	235,842	270,332	296,605	49,079	50,424	51,430
Queensland ....	17,111	19,288	22,590	6,224	8,993	6,233
South Australia ....	63,268	70,346	80,913	29,958	26,630	27,820
Tasmania ....	7,514	8,547	10,072	2,590	3,302	2,419
Northern Territory ....	824	1,689	1,402	7,348	6,842	9,569
Total, Interstate ....	562,312	640,189	726,778	149,892	149,861	151,093
<b>OVERSEAS—</b>						
Bahrain ....	85	85	443	391	1,515	
Belgium-Luxembourg ....	865	959	1,012	6,814	8,327	10,256
Canada ....	7,700	8,015	15,393	5,769	30,141	15,369
Ceylon ....	1,204	1,095	856	1,212	382	592
China, People's Republic of ....	688	949	1,172	29,856	39,229	19,844
Christmas Island (Indian Ocean) ....	2,915	2,696	2,137	1,766	1,463	2,016
Czechoslovakia ....	416	337	346	3,368	1,500	957
Denmark ....	633	800	1,113	102	68	199
Finland ....	326	673	779	29	20	15
France ....	2,254	1,713	2,081	20,197	19,001	19,391
Germany (East) ....	52	92	79	502	210	568
Germany, Federal Republic of ....	10,208	15,616	11,475	25,964	26,303	40,480
Gilbert and Ellice Islands ....	605	619	944	(b)	(b)	(b)
Greece ....	41	85	56	623	2,824	3,749
Hong Kong ....	1,369	1,777	2,374	3,276	3,455	5,289
India ....	1,537	1,801	1,630	7,986	4,951	6,872
Indonesia ....	321	358	718	410	1,118	1,120
Iran ....	6,047	2,881	4,270	1,490	2,181	16,790
Iraq ....	222	1,221	3,378	48	3	5,514
Ireland ....	176	279	240	476	395	289
Italy ....	4,814	5,125	5,368	15,539	17,073	19,232
Japan ....	27,827	34,455	51,125	226,649	309,266	428,633
Kenya ....	84	71	100	670	490	563
Korea (North) ....	(b)	(b)	(b)	2,116	3,381	684
Korea, Republic of ....	36	45	874	350	111	1,469
Kuwait ....	12,397	13,797	13,348	1,418	1,144	1,766
Malaysia ....	2,591	2,878	3,856	7,614	9,482	10,486
Mauritius ....	11	36	12	599	956	561
Mexico ....	301	794	14	1,605	830	72
Mozambique ....	(b)	(b)	11	262	8,361	2,443
Nauru ....	5,208	4,375	4,558	(b)	(b)	(b)
Netherlands ....	2,111	4,081	7,534	9,322	7,700	5,564
New Zealand ....	2,941	2,892	2,953	3,614	3,588	4,306
Norway ....	939	828	1,168	73	77	22
Pakistan ....	2,421	1,414	1,810	1,890	866	5,810
Papua and New Guinea ....	209	205	233	582	4,731	538
Philippines ....	227	102	182	812	375	594
Poland ....	1,069	608	346	5,372	3,057	1,290
Qatar ....	6,575	8,726	7,746	441	419	443
Romania ....	9	38	17	(b)	40	2,129
Saudi Arabia ....	(b)	(b)	25	1,190	730	974
Singapore ....	4,156	3,585	7,931	14,600	20,611	22,000
South Africa ....	1,425	1,571	1,513	1,483	1,623	2,022
South Yemen, Republic of ....	2,441	2,421	2,618	708	1	(b)
Spain ....	656	1,026	1,776	1,242	2,438	1,943
Sudan ....	1	1	2	130	(b)	3,999
Sweden ....	2,284	2,362	3,421	498	442	3,163
Switzerland ....	1,121	1,530	1,835	168	87	166
Taiwan ....	241	362	445	4,035	3,847	7,465
Thailand ....	47	102	122	614	513	2,598
Trucial States, Muscat and Oman ....	2,429	3,041	718	1,420	*1,598	1,525
Turkey ....	14	29	26	1,534	1,718	1,398
Union of Soviet Socialist Republics ....	28	37	16	19,596	13,180	12,063
United Arab Republic ....	(b)	(b)	(b)	868	953	9,729
United Kingdom ....	40,860	54,396	50,564	37,605	38,338	73,457
United States of America ....	37,946	46,251	52,846	66,275	68,766	69,126
Yugoslavia ....	54	49	50	1,271	2,343	1,491
Zambia ....	3	(b)	(b)	32	117	1,783
Other ....	2,482	3,014	3,130	3,837	3,813	10,087
Total, Overseas ....	203,533	242,299	278,344	546,366	675,027	862,421
<b>GRAND TOTAL</b> ....	<b>765,846</b>	<b>882,487</b>	<b>1,005,122</b>	<b>696,258</b>	<b>824,888</b>	<b>1,013,514</b>

(a) Statistics relating to trade with the Australian Capital Territory are included with those of New South Wales, than \$500. \* Revised.

(b) Less



PLATE 13—GOLDEN-BACKED HONEYEATER  
(*Melithreptus laetior*)

Block by courtesy of BP

Published references to the nesting of the Golden-backed Honeyeater are extremely rare. This nest, the third ever discovered, was built at a height of thirty feet among the drooping leaf tips by a party of five adult birds. Two eggs were laid, pure white with brown and pinkish spots. The five adults continued to attend the nest and often queued up to feed the chicks when they hatched. The main food appeared to be green leaf spiders. When the chicks left the nest, the party of seven stayed close to the nest tree for several months.



PLATE 14—CATTLE WATERING POINT, MOUNT HOUSE PASTORAL STATION IN  
WEST KIMBERLEY

*Blocks by courtesy of the Department of Lands and Surveys*

PLATE 15—CABBAGE PALMS IN THE KIMBERLEY DIVISION





*Block by courtesy of 'National Development Quarterly'*

PLATE 16—OPEN-CUT IRON ORE MINE ON MOUNT WHALEBACK IN THE PILBARA DIVISION



*Block by courtesy of 'Australian Fisheries'*

#### PLATE 17—ABROLHOS ISLANDS

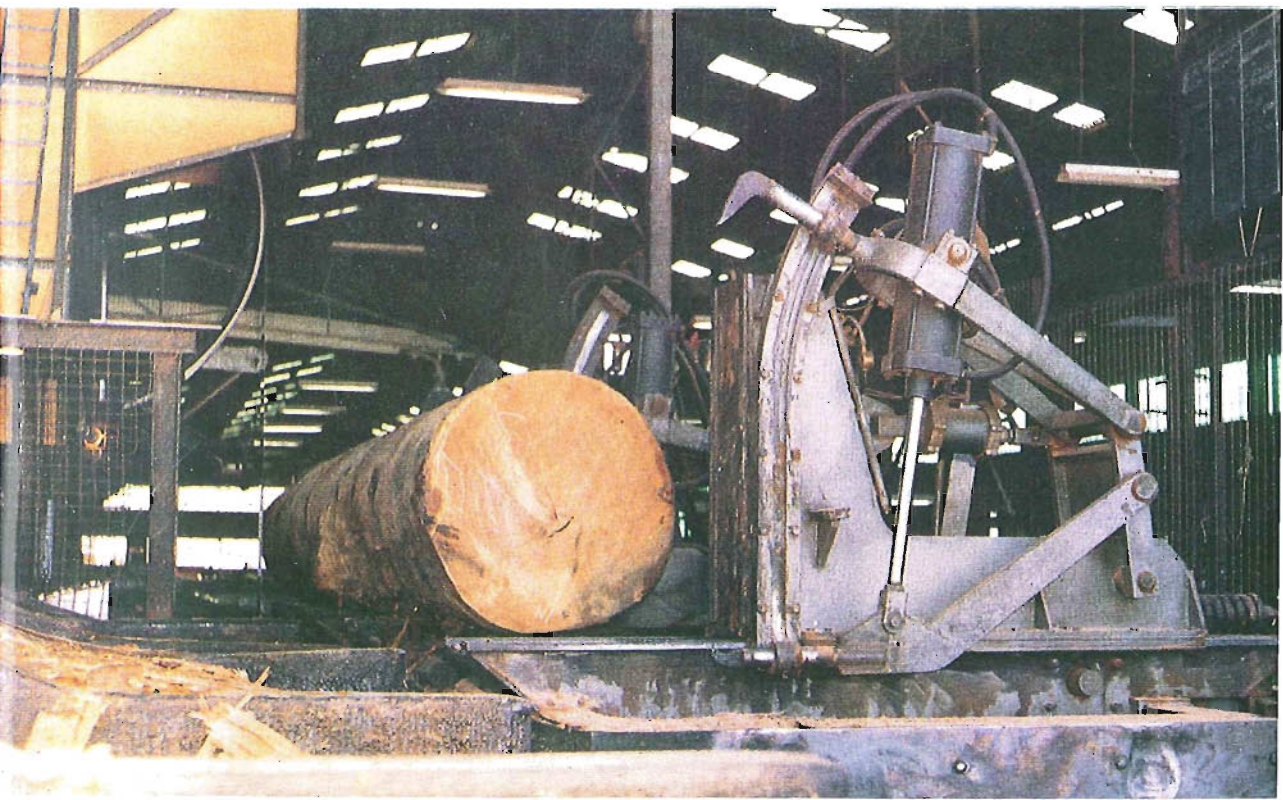
Pictured are islands of the Houtman Abrolhos, showing Big Rat (foreground) and Middle Rat in the Easter Group. During the rock lobster season from March to August each year, fishermen and their families live on the islands. Encircling reefs provide safe anchorage for the rock lobster boats but there is little shelter on the islands from winds that sweep in from the Indian Ocean. A school has been built on Big Rat Island, which also has an airstrip for light aircraft.



PLATE 18—KARRI LOGS BEING LOADED ON TO A TRUCK OVER LANDING RAMP  
AT BUSH LANDING

*Blocks by courtesy of Forests Department*

PLATE 19—KARRI LOG ON INITIAL LANDING CARRIAGE AT A PEMBERTON MILL





Progress, in May 1972, on the construction of a causeway to link the mainland from Point Peron to Garden Island in Cockburn Sound—the first stage in the establishment of Naval Support Facilities in the outer harbour of the Port of Fremantle, Western Australia.

*Block by courtesy of Fremantle Port Authority*

PLATE 20—COCKBURN SOUND CAUSEWAY

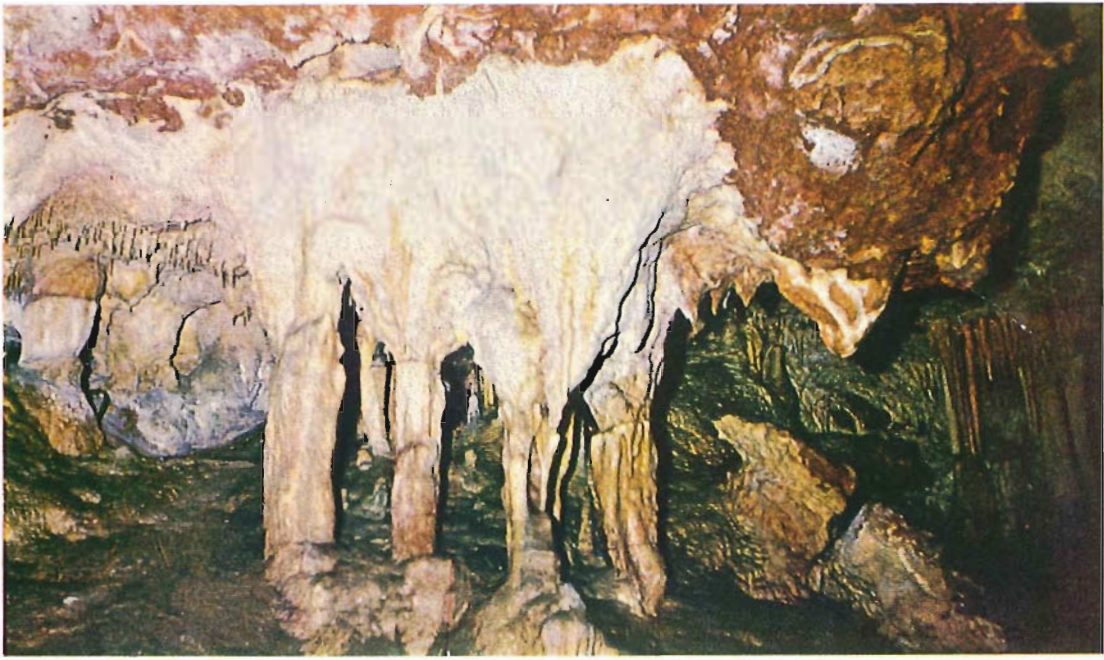
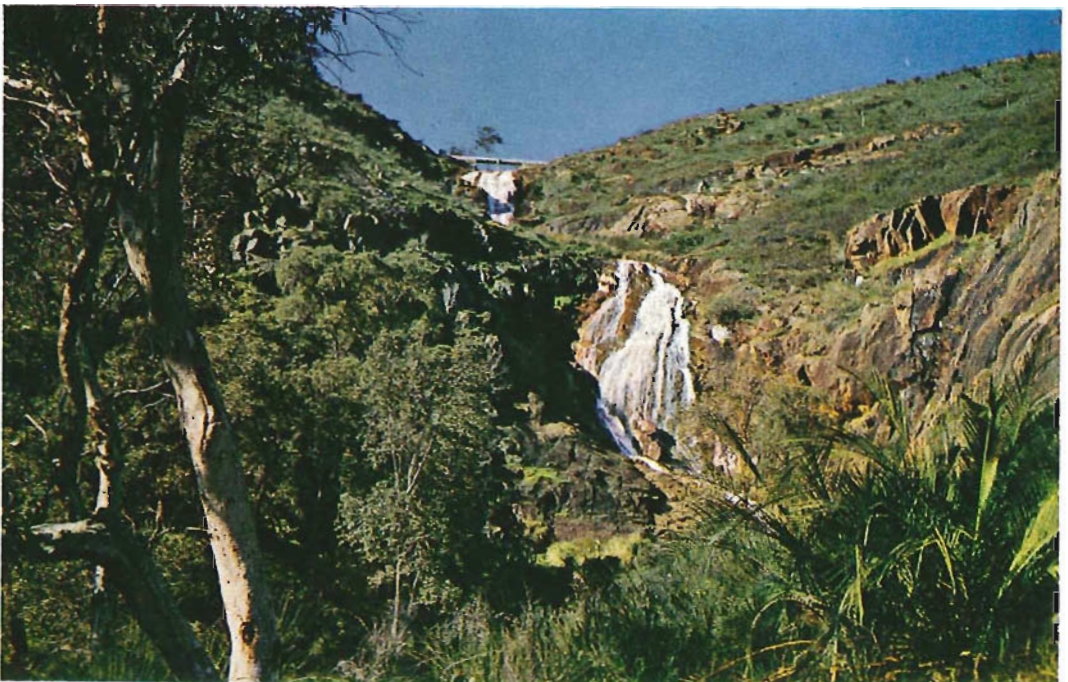
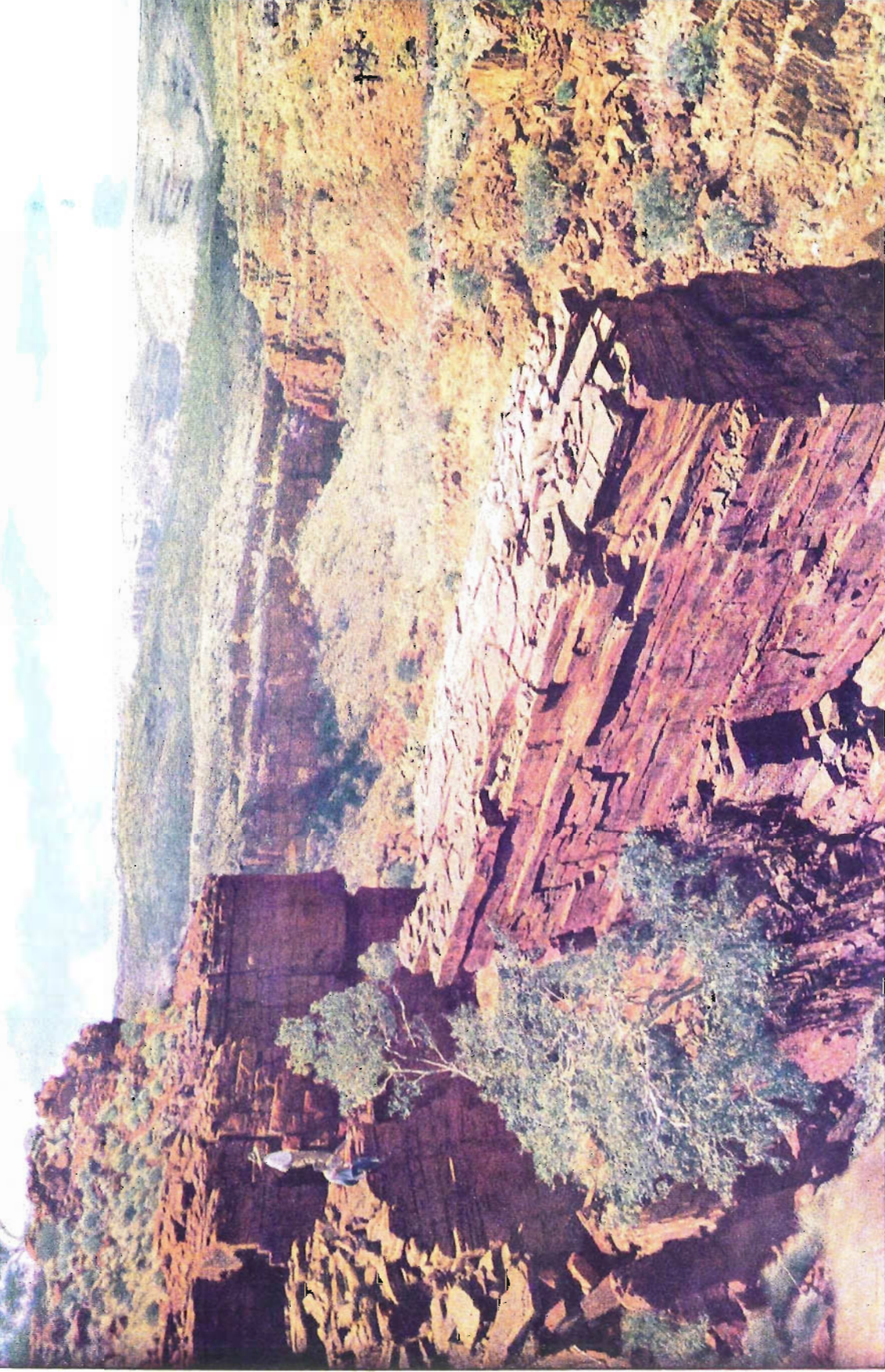


PLATE 21—'BEAST OF BURDEN', ONE OF WESTERN AUSTRALIA'S MOST UNIQUE  
CAVE FORMATIONS

*Blocks by courtesy of the National Parks Board of Western Australia*

PLATE 22—LESMURDIE FALLS NATIONAL PARK





Block by courtesy of the National Parks Board of Western Australia

PLATE 23—WITTENOOM GORGE, HAMERSLEY RANGE IN THE PILBARA DIVISION

The following table shows the proportional distribution of Western Australia's trade with overseas countries and with Australian States and Territories during each of the years 1968-69 to 1970-71.

VALUE OF IMPORTS INTO AND EXPORTS FROM WESTERN AUSTRALIA  
PROPORTIONS ACCORDING TO ORIGIN OR DESTINATION  
(Per cent of total)

Origin or destination	Imports			Exports		
	1968-69	1969-70	1970-71	1968-69	1969-70	1970-71
<b>INTERSTATE—</b>						
New South Wales (a) .....	42.28	42.17	43.37	36.49	35.81	35.49
Victoria .....	41.94	42.23	40.81	32.74	33.65	34.04
Queensland .....	3.04	3.01	3.11	4.15	6.00	4.13
South Australia .....	11.25	10.99	11.13	19.99	17.77	18.41
Tasmania .....	1.34	1.34	1.39	1.73	2.20	1.60
Northern Territory .....	0.15	0.26	0.19	4.90	4.57	6.33
Total, Interstate .....	100.00	100.00	100.00	100.00	100.00	100.00
<b>OVERSEAS—</b>						
Bahrain .....	0.42	0.40	0.36	0.08	0.06	0.18
Belgium-Luxembourg .....	3.78	3.31	5.53	1.05	1.23	1.18
Canada .....	0.59	0.45	0.31	0.22	0.06	0.07
Ceylon .....	0.34	0.39	0.42	5.46	5.81	2.30
China, People's Republic of .....	1.43	1.11	0.77	0.32	0.22	0.23
Christmas Island (Indian Ocean) .....	0.20	0.14	0.12	0.62	0.22	0.11
Czechoslovakia .....	0.31	0.33	0.40	0.02	0.01	0.02
Denmark .....	0.16	0.28	0.28	0.01	(b)	
Finland .....	1.11	0.71	0.75	3.70	2.81	2.25
France .....	0.03	0.04	0.03	0.09	0.03	0.07
Germany (East) .....	5.02	6.45	4.12	4.75	3.90	4.69
Germany, Federal Republic of .....	0.30	0.26	0.34	(b)		
Gilbert and Ellice Islands .....	0.02	0.04	0.02	0.11	0.42	0.43
Greece .....	0.67	0.73	0.85	0.60	0.51	0.61
Hong Kong .....	0.75	0.74	0.59	1.46	0.73	0.80
India .....	0.16	0.15	0.26	0.08	0.17	0.13
Indonesia .....	2.97	1.19	1.53	0.27	0.32	1.95
Iraq .....	0.11	0.50	1.21	0.01	(b)	0.64
Ireland .....	0.09	0.12	0.09	0.09	0.06	0.03
Italy .....	2.37	2.12	1.93	2.84	2.53	2.23
Japan .....	13.67	14.22	18.37	41.48	45.82	49.70
Kenya .....	0.04	0.03	0.04	0.12	0.07	0.07
Korea (North) .....	(b)	(b)	(b)	0.39	0.50	0.08
Korea, Republic of .....	0.02	0.02	0.31	0.06	0.02	0.17
Kuwait .....	6.09	5.69	4.80	0.26	0.17	0.20
Malaysia .....	1.27	1.19	1.39	1.39	1.40	1.21
Mauritius .....	0.01	0.01	(b)	0.11	0.14	0.07
Mexico .....	0.15	0.33	(b)	0.29	0.12	0.01
Mozambique .....	(b)	(b)	(b)	0.05	1.24	0.28
Nauru .....	2.56	1.81	1.64	(b)	(b)	(b)
Netherlands .....	1.04	1.68	2.71	1.71	1.14	0.65
New Zealand .....	1.44	1.19	1.06	0.66	0.53	0.50
Norway .....	0.46	0.34	0.42	0.01	0.01	(b)
Pakistan .....	1.19	0.58	0.65	0.35	0.13	0.67
Papua and New Guinea .....	0.10	0.08	0.08	0.11	0.70	0.06
Philippines .....	0.11	0.04	0.07	0.15	0.06	0.07
Poland .....	0.53	0.25	0.12	0.98	0.45	0.15
Qatar .....	3.23	3.60	2.78	0.08	0.06	0.05
Romania .....	(b)	0.02	0.01	(b)	0.01	0.25
Saudi Arabia .....	(b)	(b)	0.01	0.22	0.11	0.11
Singapore .....	2.04	1.48	2.85	2.67	3.05	2.55
South Africa .....	0.70	0.65	0.54	0.27	0.24	0.23
South Yemen, Republic of .....	1.20	1.00	0.94	0.13	(b)	(b)
Spain .....	0.32	0.42	0.64	0.23	0.36	0.23
Sudan .....	(b)	(b)	(b)	0.02	(b)	0.46
Sweden .....	1.12	0.97	1.23	0.09	0.07	0.37
Switzerland .....	0.55	0.63	0.66	0.03	0.01	0.02
Taiwan .....	0.12	0.15	0.16	0.74	0.57	0.87
Thailand .....	0.02	0.04	0.04	0.11	0.08	0.30
Trucial States, Muscat and Oman .....	1.19	1.26	0.26	0.26	*0.24	0.18
Turkey .....	0.01	0.01	0.01	0.28	0.25	0.16
Union of Soviet Socialist Republics .....	0.01	0.02	0.01	3.59	1.95	1.40
United Arab Republic .....	(b)	(b)	(b)	0.16	0.14	1.13
United Kingdom .....	20.08	22.45	18.17	6.88	5.68	8.52
United States of America .....	18.64	19.09	18.99	12.13	10.19	8.02
Yugoslavia .....	0.03	0.02	0.02	0.23	0.35	0.17
Zambia .....	(b)	(b)	(b)	0.01	0.02	0.21
Other .....	1.22	1.24	1.12	0.70	0.56	1.17
Total, Overseas .....	100.00	100.00	100.00	100.00	100.00	100.00

(a) Statistics relating to trade with the Australian Capital Territory are included with those of New South Wales.  
than 0.005 per cent. \* Revised.

(b) Less

## IMPORTS

The following table shows the value of the principal items of interstate and overseas imports into Western Australia during 1969-70 and 1970-71.

VALUE OF PRINCIPAL IMPORTS INTO WESTERN AUSTRALIA—SELECTED COMMODITIES (\$'000)

Division	Description	1969-70			1970-71		
		Interstate	Overseas	Total	Interstate	Overseas	Total
00	Animals, live .....	3,579	38	3,617	2,374	12	2,386
11	Beverages, alcoholic .....	5,334	849	6,183	6,635	1,236	7,872
51	Chemical elements and compounds .....	5,238	4,975	10,213	6,583	6,363	12,946
27, 56	Fertilisers .....	611	9,368	9,979	125	9,121	9,246
	Food—						
04	Cereals and cereal preparations .....	6,442	486	6,928	7,133	526	7,659
06, 07	Confectionery .....	5,403	165	5,568	7,354	152	7,505
03	Fish and fish preparations .....	686	2,677	3,363	628	3,553	4,181
05	Fruit, fresh or preserved .....	5,714	162	5,876	7,164	212	7,376
01	Meat and meat preparations .....	2,358	186	2,544	2,560	113	2,672
02	Milk and cream .....	3,241	7	3,247	3,639	8	3,647
05	Vegetables, fresh or preserved .....	4,441	544	4,984	5,587	602	6,189
	Other food .....	27,070	3,486	30,557	31,456	3,863	35,319
85	Footwear, gaiters and similar articles and parts therefor .....	10,118	629	10,747	9,632	734	10,366
82	Furniture .....	4,057	424	4,481	5,307	461	5,768
66	Glass and glassware .....	3,341	1,457	4,798	3,838	1,845	5,683
	Machinery—						
72	Electrical machinery, apparatus and appliances—						
	Batteries .....	2,483	224	2,707	2,779	186	2,965
	Domestic electrical—						
	Cooking and heating .....	4,799	81	4,881	4,791	113	4,904
	Refrigerators and parts .....	5,821	265	6,086	5,565	606	6,171
	Washing machines and parts .....	3,732	115	3,847	3,745	417	4,162
	Power machinery and switchgear .....	9,237	6,257	15,493	10,210	7,152	17,361
	Telecommunication apparatus .....	18,192	5,576	23,768	20,314	2,254	22,568
	Wire and cable, insulated .....	9,918	185	10,103	8,406	507	8,912
71	Other than electric—						
	Agricultural—						
	Tractors .....	1,428	3,827	5,256	1,619	1,487	3,106
	Other .....	7,677	547	8,223	5,449	594	6,043
	Excavating, levelling, tamping and boring, for earth, minerals or ores .....	8,934	13,307	22,241	14,506	24,400	38,906
	Internal combustion engines .....	3,228	5,898	9,126	4,368	6,030	10,398
	Lifting, handling, loading or unloading .....	3,803	1,762	5,564	11,988	2,069	14,057
	Office .....	2,978	1,729	4,707	3,613	2,148	5,761
	Pumps for liquids .....	2,928	1,282	4,211	4,174	1,302	5,475
54	Medicinal and pharmaceutical products .....	13,897	551	14,448	15,175	895	16,070
69	Metal manufactures, n.e.i.—						
	Household cooking and heating appliances, non-electrical .....	2,385	283	2,668	2,680	149	2,829
	Tools .....	5,908	2,608	8,516	6,833	3,908	10,740
	Metals—						
67	Iron and steel—						
	Pig, ingot and other primary forms .....	7,607	150	7,757	7,264	247	7,511
	Other .....	38,732	5,378	44,111	46,012	17,406	63,417
66	Mineral manufactures, non-metallic, n.e.i. ....	5,131	2,353	7,483	5,815	2,494	8,308
64	Paper, paperboard and manufactures thereof .....	12,456	5,451	17,907	14,434	5,736	20,170
33	Petroleum and petroleum products .....	2,874	36,114	38,988	5,057	41,734	46,791
53	Pigments, paints and varnishes .....	4,518	256	4,774	4,408	239	4,647
89	Plastic articles, n.e.i. ....	7,099	350	7,448	7,644	410	8,054
58	Plastic materials, regenerated cellulose and artificial resins .....	8,316	1,635	9,951	9,034	1,827	10,860
89	Printed matter .....	4,813	2,357	7,170	6,029	2,584	8,612
86	Scientific, medical, optical and photographic equipment .....	9,317	2,965	12,282	10,014	2,786	12,800
55	Soaps and cleansing preparations .....	5,586	146	5,733	5,635	224	5,859
65	Textiles and textile manufactures—						
	Bags and sacks .....	52	2,402	2,454	119	1,484	1,604
	Clothing and clothing accessories .....	45,194	738	45,933	47,013	982	47,995
	Fabrics .....	9,536	4,069	13,606	10,169	4,221	14,391
	Floor coverings .....	6,280	2,156	8,436	6,499	2,494	8,993
24	Timber .....	143	2,954	3,097	71	3,611	3,682
12	Tobacco and tobacco manufactures .....	16,275	287	16,562	15,032	359	15,391
55	Toilet preparations (except soaps) .....	7,339	29	7,368	9,250	42	9,292
73	Transport equipment—						
	Road motor vehicles and components .....	89,507	15,479	104,986	99,010	23,042	122,052
	Other .....	13,288	32,840	46,128	21,034	21,857	42,891
62	Tyres and tubes .....	8,884	4,114	12,998	10,121	7,302	17,423
	All other commodities .....	142,260	50,127	192,388	160,888	54,249	215,137
	TOTAL .....	640,189	242,299	882,487	726,778	278,344	1,005,122

The principal imports from each of the Australian States and the Northern Territory are given in the following table.

VALUE OF PRINCIPAL IMPORTS FROM AUSTRALIAN STATES—SELECTED COMMODITIES  
(\$'000)

Division	Description	1969-70	1970-71						Total
		Total	N.S.W. (a)	Vic.	Qld	S.A.	Tas.	N.T.	
11	Beverages, alcoholic .....	5,334	1,390	1,985	11	3,199	26	25	6,635
51	Chemical elements and compounds .....	5,238	2,503	927	1,587	1,085	481	....	6,583
84	Clothing and clothing accessories and articles of knitted or crocheted fabric .....	45,194	16,475	28,172	1,285	1,023	58	(b)	47,013
55	Essential oils and perfume materials, toilet, polishing and cleansing preparations—								
	Soap and cleansing preparations .....	5,586	4,431	1,181	1	23	....	....	5,635
	Toilet preparations (except soaps) .....	7,339	6,583	2,219	1	448	....	....	9,250
04	Food—								
06, 07	Cereals and cereal preparations .....	6,442	3,724	2,669	543	408	89	(b)	7,133
05	Confectionery .....	5,403	2,001	3,436	....	255	1,817	....	7,509
	Fruit—								
	Dried .....	897	6	803	....	449	4	....	1,262
	Fresh .....	965	1,051	4	623	464	....	....	2,142
	Other (including nuts) .....	5,923	493	3,167	1,972	1,376	385	....	7,393
01	Meat and meat preparations .....	2,358	314	2,068	94	81	3	(b)	2,560
02	Milk and cream .....	3,241	349	3,287	2	....	....	1	3,639
	Other food .....	30,126	5,859	18,798	6,101	1,550	1,570	3	33,882
85	Footwear, gaiters and similar articles and parts therefor .....	10,118	2,358	6,051	361	839	23	....	9,632
82	Furniture .....	4,057	1,169	2,356	230	1,533	20	....	5,307
66	Glass and glassware .....	3,341	1,830	1,896	1	111	....	(b)	3,838
59	Insecticides, fungicides, etc. ....	3,172	2,491	254	7	41	....	....	2,792
72	Machinery—								
	Electrical machinery, apparatus and appliances—								
	Batteries .....	2,483	1,778	868	(b)	127	5	(b)	2,779
	Domestic electrical—								
	Cooking and heating .....	4,799	2,578	1,841	7	365	....	(b)	4,791
	Refrigerators and parts .....	5,821	2,482	1,623	....	1,661	....	....	5,766
	Washing machines and parts .....	3,732	2,278	181	....	1,510	....	....	3,969
	Electric power machinery and switchgear .....	9,237	4,376	3,868	469	1,497	(b)	(b)	10,210
	Telecommunication apparatus—								
	Radio broadcast receivers .....	2,556	1,559	642	2	275	....	....	2,479
	Television receivers .....	4,410	2,048	1,246	....	411	....	....	3,705
	Other .....	11,226	7,935	5,879	20	295	(b)	....	14,129
	Wire and cable, insulated .....	9,918	3,501	4,385	92	427	....	....	8,406
	Other .....	9,185	5,837	5,450	19	617	29	....	11,952
71	Other than electric—								
	Agricultural—								
	Tractors .....	1,428	128	1,397	7	87	....	....	1,619
	Other .....	7,677	1,782	2,945	49	671	2	....	5,449
	Excavating, levelling, tamping and boring, for earth, minerals or ores .....	8,934	8,551	4,454	836	649	16	(b)	14,506
	Other .....	44,093	31,897	22,482	1,301	6,280	7	11	61,978
54	Medicinal and pharmaceutical products	13,897	10,870	3,830	9	466	....	....	15,175
	Metals—								
67	Iron and steel—								
	Pig, ingot and other primary forms .....	7,607	1,796	5	....	5,397	65	....	7,264
	Other .....	38,732	37,388	1,548	55	7,020	(b)	....	46,012
68	Non-ferrous .....	14,592	8,608	2,997	124	376	987	....	13,091
64	Paper, paperboard and manufactures thereof .....	12,456	4,304	5,668	382	1,431	2,648	....	14,434
33	Petroleum and petroleum products .....	2,874	1,105	3,793	1	61	....	95	5,057
53	Pigments, paints, varnishes, etc. ....	4,518	2,416	1,479	115	398	....	....	4,408
58	Plastic materials, regenerated cellulose and artificial resins .....	8,316	3,914	4,333	119	668	....	(b)	9,034
86	Scientific, medical, optical and photographic equipment .....	9,317	5,008	4,771	63	171	1	....	10,014
00	Sheep, live .....	912	145	36	....	329	31	....	541
65	Textile yarn, fabrics, made-up articles and related products—								
	Fabrics .....	9,536	3,585	5,754	86	419	326	(b)	10,169
	Floor coverings and the like .....	6,280	2,066	4,335	2	54	43	....	6,499
	Other .....	7,050	2,941	3,741	14	857	54	....	7,607
12	Tobacco and tobacco manufactures .....	16,275	2,572	12,382	48	28	....	2	15,032
69	Tools .....	5,908	3,393	2,441	138	752	109	(b)	6,833
73	Transport equipment—								
	Road motor vehicles and components .....	89,507	18,146	57,327	1,464	21,944	125	4	99,010
	Other .....	13,288	15,670	2,097	2,071	1,181	5	10	21,034
62	Tyres and tubes .....	8,884	4,652	5,066	41	362	....	....	10,121
	All other commodities .....	100,007	56,858	38,470	2,537	11,242	1,143	1,250	111,500
	TOTAL .....	640,189	315,196	296,605	22,590	80,913	10,072	1,402	726,778

(a) Includes the value of imports from the Australian Capital Territory.

(b) Less than \$500.

VALUE OF OVERSEAS IMPORTS FROM PRINCIPAL COUNTRIES OF ORIGIN  
DIVISIONS OF THE IMPORT COMMODITY CLASSIFICATION: 1970-71  
(\$'000)

Division	Description	United States of America	Japan	United Kingdom	Canada	Germany, Federal Republic of	Singapore	Other	Total
00	Live animals	....	....	(a)	....	....	....	12	12
01	Meat and meat preparations	(a)	(a)	11	2	....	(a)	99	113
02	Dairy products and eggs	8	(a)	1	....	15	(a)	266	291
03	Fish and fish preparations	55	665	892	115	79	32	1,714	3,553
04	Cereals and cereal preparations	4	17	227	31	5	6	236	526
05	Fruit and vegetables	95	24	106	37	4	3	1,107	1,376
06	Sugar, sugar preparations and honey	1	1	93	1	....	(a)	46	143
07	Coffee, cocoa, tea, spices and manufactures thereof	17	66	16	....	(a)	4	1,706	1,810
08	Feeding-stuff for animals (excluding unmilled cereals)	328	2	1	....	(a)	....	325	657
09	Miscellaneous preparations chiefly for food	21	44	365	12	2	29	87	561
11	Beverages	6	1	918	14	23	(a)	276	1,239
12	Tobacco and tobacco manufactures	5	(a)	157	....	....	....	197	359
21	Hides, skins and fur skins, undressed	....	....	....	....	....	....	4	4
22	Oil-seeds, oil nuts and oil kernels	9	(a)	15	4	....	(a)	12	41
23	Crude rubber (including synthetic and reclaimed)	16	....	4	....	10	4	72	107
24	Wood, timber and cork	233	(a)	1	7	....	9	(b)3,525	3,775
25	Pulp and waste paper	....	....	....	136	....	....	528	665
26	Textile fibres and their waste	(a)	12	68	....	....	....	388	468
27	Crude fertilisers and crude minerals (excluding coal, petroleum and precious stones)	919	141	21	2,618	10	(a)	(c)8,276	11,985
28	Metalliferous ores and metal scrap	1	1	(a)	73	....	....	7	82
29	Crude animal and vegetable materials, n.e.i.	27	1	84	15	4	6	306	441
32	Coal, coke and briquettes	....	....	....	....	9	....	3	12
33	Petroleum and petroleum products	269	18	69	35	19	7,538	33,786	41,734
42	Fixed vegetable oils and fats	(a)	11	52	....	23	17	(d)437	540
43	Animal and vegetable oils and fats, processed, and waxes of animal or vegetable origin	(a)	....	6	1	4	....	(a)	11
51	Chemical elements and compounds	2,662	1,443	592	169	439	7	1,050	6,363
53	Dyeing, tanning and colouring materials	38	23	179	15	72	(a)	107	434
54	Medicinal and pharmaceutical products	6	13	209	....	42	(a)	626	895
55	Essential oils and perfume materials, toilet, polishing and cleansing preparations	141	10	83	1	23	(a)	190	448
56	Fertilisers, manufactured	503	679	(a)	....	139	....	154	1,476
57	Explosives and pyrotechnic products	688	....	5	....	(a)	....	13	706
58	Plastic materials, regenerated cellulose and artificial resins	224	339	837	161	124	....	142	1,827
59	Chemical materials and products, n.e.i.	2,264	15	1,823	2	204	....	221	4,529
61	Leather, leather manufactures, n.e.i. and dressed fur skins	1	127	40	(a)	1	....	15	183
62	Rubber manufactures, n.e.i.	3,183	2,184	1,636	104	84	....	1,785	8,976
63	Wood and cork manufactures (excluding furniture)	23	166	96	....	9	48	606	948
64	Paper, paperboard and manufactures thereof	122	386	546	2,426	108	(a)	2,147	5,736
65	Textile yarn, fabrics, made-up articles and related products	501	2,275	2,156	279	265	31	3,356	8,862
66	Non-metallic mineral manufactures, n.e.i.	355	1,061	1,041	74	515	13	1,281	4,339
67	Iron and steel	1,224	13,823	1,279	187	337	10	793	17,653
68	Non-ferrous metals	10	9	50	144	14	....	43	270
69	Manufactures of metal, n.e.i.	2,342	1,297	1,651	36	666	19	1,960	7,970
71	Machinery, other than electric	21,722	9,898	16,279	429	2,999	8	(e)5,004	56,341
72	Electrical machinery, apparatus and appliances	2,348	3,839	5,738	95	967	14	1,567	14,568
73	Transport equipment	8,776	9,699	6,807	7,906	3,171	....	(f)8,541	44,900
81	Sanitary, plumbing, heating and lighting fixtures and fittings	15	32	113	....	14	(a)	84	258
82	Furniture	32	59	159	3	9	14	184	461
83	Travel goods, handbags and similar articles	1	119	34	....	8	1	149	312
84	Clothing and clothing accessories, and articles of knitted or crocheted fabric	11	83	485	3	8	2	390	982
85	Footwear, gaiters and similar articles and parts therefor	6	93	65	....	22	(a)	547	734
86	Professional, scientific and controlling instruments; photographic and optical goods; watches and clocks	800	398	953	84	351	1	540	3,127
89	Miscellaneous manufactured articles, n.e.i.	616	1,074	3,335	21	261	85	1,610	7,001
	Other....	2,219	977	1,266	154	412	27	2,490	7,546
	Total	52,846	51,125	50,564	15,393	11,475	7,931	89,011 (g)	278,344

(a) Less than \$500. (b) Includes Malaysia, \$2.87 million. (c) Includes phosphates from Nauru, \$4.56 million; and Christmas Island (Indian Ocean), \$2.13 million. (d) Includes Kuwait, \$13.3 million; Qatar, \$7.75 million; Iran, \$4.26 million; Iraq, \$3.35 million; and Republic of South Yemen, \$2.62 million. (e) Includes Italy, \$1.17 million. (f) Includes Netherlands, \$5.56 million; and Italy, \$1.52 million. (g) Includes an amount of \$49.1 million, representing the value of imports detailed in footnotes (b), (c), (d), (e) and (f).

## EXPORTS

QUANTITY AND VALUE OF PRINCIPAL EXPORTS FROM WESTERN AUSTRALIA  
SELECTED COMMODITIES: 1970-71

Division	Description	Unit	Interstate		Overseas		Total	
			Quantity	Value	Quantity	Value	Quantity	Value
				\$'000		\$'000		\$'000
00	Animals (live)—							
	Cattle .....	number	18,087	1,115	921	44	19,008	1,159
	Sheep .....	number	293	6	414,700	2,704	414,993	2,710
51	Chemical elements and compounds .....	n.a.	n.a.	15,955	n.a.	45,413	n.a.	61,368
84	Clothing and clothing accessories and articles of knitted or crocheted fabric .....	n.a.	n.a.	790	n.a.	22	n.a.	812
26	Cotton fibre .....	'000 lb	5,186	1,348	2,132	484	7,318	1,833
	Food—							
04	Cereals and cereal preparations—							
	Barley, unmilled .....	'000 bush	....	....	20,586	21,627	20,586	21,627
	Flour of wheat .....	sh. ton (s)	828	92	28,571	1,865	29,399	1,958
	Oats, unmilled .....	'000 bush	....	....	12,887	10,074	12,887	10,074
	Wheat, unmilled .....	'000 bush	(b)	(b)	98,138	130,563	98,138	130,564
03	Fish, fresh, chilled or frozen—							
	Prawns .....	'000 lb	940	814	2,788	3,314	3,728	4,128
	Rock lobster tails .....	'000 lb	106	311	6,849	19,103	6,955	19,413
	Other .....	'000 lb	416	299	1,062	940	1,478	1,239
05	Fruit, fresh—							
	Apples .....	'000 bush	(b)	1	1,833	6,220	1,833	6,221
	Other .....	n.a.	n.a.	55	n.a.	932	n.a.	987
06	Honey .....	'000 lb	9	2	2,722	449	2,732	451
01	Meat, fresh, chilled or frozen—							
	Beef and veal .....	'000 lb	284	134	44,374	17,492	44,658	17,626
	Lamb .....	'000 lb	205	51	6,621	1,259	6,826	1,310
	Mutton .....	'000 lb	100	20	46,522	8,066	46,622	8,086
	Pigmeat .....	'000 lb	2,270	827	212	69	2,482	895
	Other (c) .....	'000 lb	793	269	8,269	1,833	9,062	2,102
05	Vegetables, fresh—							
	Potatoes .....	'000 cwt	78	156	106	354	185	510
	Other .....	n.a.	n.a.	141	n.a.	988	n.a.	1,129
	Other food .....	n.a.	n.a.	3,173	n.a.	2,055	n.a.	5,229
85	Footwear, gaiters and similar articles .....	n.a.	n.a.	1,487	n.a.	1	n.a.	1,488
82	Furniture .....	n.a.	n.a.	2,121	n.a.	106	n.a.	2,228
99	Gold mint bullion .....	'000 fine oz	96	3,041	....	....	96	3,041
67	Iron and steel (d) .....	'000 tons	282	13,421	374	21,150	657	34,571
	Machinery—							
72	Electric power machinery and switchgear .....	n.a.	n.a.	790	n.a.	67	n.a.	858
71	Other than electric—							
	Agricultural—							
	Tractors .....	n.a.	n.a.	2,918	n.a.	150	n.a.	3,068
	Other .....	n.a.	n.a.	317	n.a.	32	n.a.	350
	Sorting, screening, crushing, mixing, for earth, stone, ores or other mineral substances .....	n.a.	n.a.	849	n.a.	176	n.a.	1,025
	Other .....	n.a.	n.a.	6,655	n.a.	4,350	n.a.	11,005
28	Metal waste and scrap .....	'000 cwt	121	2,501	599	1,442	720	3,943
27	Minerals, crude—							
	Salt .....	'000 cwt	1	3	52,159	8,864	52,160	8,866
28	Ores, metalliferous—							
	Copper .....	'000 cwt	32	1,080	66	542	97	1,622
	Ilmenite .....	'000 tons	40	567	514	6,064	554	6,631
	Iron .....	'000 tons	2,273	14,101	43,269	327,601	45,542	341,702
	Manganese .....	'000 tons	....	....	156	2,755	156	2,755
	Tin .....	'000 cwt	2	240	13	1,271	15	1,511
	Other .....	'000 cwt	....	8	....	44,059	....	44,067
64	Paper, paperboard and manufactures thereof .....	n.a.	n.a.	835	n.a.	283	n.a.	1,118
33	Petroleum and petroleum products .....	n.a.	n.a.	39,769	n.a.	6,848	n.a.	46,617
62	Rubber manufactures, n.e.i. .....	n.a.	n.a.	1,594	n.a.	13	n.a.	1,607
68	Silver bullion .....	'000 fine oz	....	....	2,985	4,632	2,985	4,632
21	Skins and hides—							
	Bovine .....	'000 lb	2,055	270	8,260	1,044	10,315	1,315
	Sheep and lamb .....	'000 lb	120	24	20,599	3,457	20,718	3,482
	Other .....	n.a.	n.a.	460	n.a.	139	n.a.	599
41	Tallow .....	'000 cwt	1	10	376	3,169	377	3,179
24	Timber—							
	Sleepers, railway .....	'000 sup. ft	4,355	585	8,398	1,464	12,753	2,049
	Other .....	'000 sup. ft	16,728	2,088	4,178	671	20,906	2,759
73	Transport equipment .....	n.a.	n.a.	3,011	n.a.	11,069	n.a.	14,080
63	Veneers, plywood boards and reconstituted wood .....	n.a.	n.a.	2,020	n.a.	61	n.a.	2,081
26	Wool—							
	Degreased (washed, scoured, etc.) .....	tonne (e)	1,057	1,116	8,193	7,421	9,251	8,537
	Greasy (including slupe) .....	tonne (e)	5,432	5,016	113,705	84,736	119,137	89,752
	Other .....	tonne (e)	69	152	1,277	2,136	1,346	2,289
	All other commodities .....	n.a.	n.a.	18,483	n.a.	40,777	n.a.	59,260
	TOTAL .....	n.a.	n.a.	151,093	n.a.	862,421	n.a.	1,013,514

n.a. denotes 'not applicable' or 'not available'.

(a) Short ton = 2,000 lb. (b) Less than 500. (c) Includes edible offals, poultry and rabbits. (d) Principally pig-iron, cast iron, basic shapes and sections. (e) 1 tonne = 1,000 kilograms. 1 kg = 2.2 lb approx.

The following table shows the value and proportion of the principal items exported overseas and interstate during 1970-71.

VALUE OF PRINCIPAL EXPORTS FROM WESTERN AUSTRALIA  
SELECTED COMMODITIES: 1970-71

Division	Description	Value (\$'000)			Proportion of total (per cent)		
		Interstate	Overseas	Total	Interstate	Overseas	Total
00	Animals (live)—						
	Cattle .....	1,115	44	1,159	0.74	0.01	0.11
	Sheep .....	6	2,704	2,710	(a)	0.31	0.27
51	Chemical elements and compounds .....	15,955	45,413	61,368	10.56	5.27	6.05
84	Clothing and clothing accessories and articles of knitted or crocheted fabric .....	790	22	812	0.52	(a)	0.08
26	Cotton fibre .....	1,348	484	1,833	0.89	0.06	0.18
	Food—						
04	Cereals and cereal preparations—						
	Barley, unmilled .....		21,627	21,627	(a)	2.51	2.13
	Flour of wheat .....	92	1,865	1,958	0.06	0.22	0.19
	Oats, unmilled .....		10,074	10,074	(a)	1.17	0.99
	Wheat, unmilled .....	(b)	130,563	130,564	(a)	15.14	12.88
03	Fish, fresh, chilled or frozen—						
	Prawns .....	814	3,314	4,128	0.54	0.38	0.41
	Rock lobster tails .....	311	19,103	19,413	0.21	2.22	1.92
	Other .....	299	940	1,239	0.20	0.11	0.12
05	Fruit, fresh—						
	Apples .....	1	6,220	6,221	(a)	0.72	0.61
	Other .....	55	932	987	0.04	0.11	0.10
06	Honey .....	2	449	451	(a)	0.05	0.04
01	Meat, fresh, chilled or frozen—						
	Beef and veal .....	134	17,492	17,626	0.09	2.03	1.74
	Lamb .....	51	1,259	1,310	0.03	0.15	0.13
	Mutton .....	20	8,066	8,086	0.01	0.94	0.80
	Pigmeat .....	827	69	895	0.55	0.01	0.09
	Other (c) .....	269	1,833	2,102	0.18	0.21	0.21
05	Vegetables, fresh—						
	Potatoes .....	156	354	510	0.10	0.04	0.05
	Other .....	141	988	1,129	0.09	0.11	0.11
	Other food .....	3,173	2,055	5,229	2.10	0.24	0.52
85	Footwear, gaiters and similar articles .....	1,487	1	1,488	0.98	(a)	0.15
82	Furniture .....	2,121	106	2,228	1.40	0.01	0.22
99	Gold mint bullion .....	3,041		3,041	2.01	(a)	0.30
67	Iron and steel (d) .....	13,421	21,150	34,571	8.88	2.45	3.41
	Machinery .....						
72	Electric power machinery and switchgear .....	790	67	858	0.52	0.01	0.08
71	Other than electric—						
	Agricultural—						
	Tractors .....	2,918	150	3,068	1.93	0.02	0.30
	Other .....	317	32	350	0.21	(a)	0.03
	Sorting, screening, crushing, mixing, for earth, stone, ores or other mineral substances .....	849	176	1,025	0.56	0.02	0.10
	Other .....	6,655	4,350	11,005	4.40	0.50	1.09
28	Metal waste and scrap .....	2,501	1,442	3,943	1.66	0.17	0.39
27	Minerals, crude—						
	Salt .....	3	8,864	8,866	(a)	1.03	0.87
28	Ores, metalliferous—						
	Copper .....	1,080	542	1,622	0.71	0.06	0.16
	Ilmenite .....	567	6,064	6,631	0.38	0.70	0.65
	Iron .....	14,101	327,601	341,702	9.33	37.99	33.71
	Manganese .....		2,755	2,755	(a)	0.32	0.27
	Tin .....	240	1,271	1,511	0.16	0.15	0.15
	Other .....	8	44,059	44,067	0.01	5.11	4.35
64	Paper, paperboard and manufactures, thereof .....	835	283	1,118	0.55	0.03	0.11
33	Petroleum and petroleum products .....	39,769	6,848	46,617	26.32	0.79	4.60
62	Rubber manufactures, n.e.i. .....	1,594	13	1,607	1.05	(a)	0.16
68	Silver bullion .....		4,632	4,632	(a)	0.54	0.46
21	Skins and hides—						
	Bovine .....	270	1,044	1,315	0.18	0.12	0.13
	Sheep and lamb .....	24	3,457	3,482	0.02	0.40	0.34
	Other .....	460	139	599	0.30	0.02	0.06
41	Tallow .....	10	3,169	3,179	0.01	0.37	0.31
24	Timber—						
	Sleepers, railway .....	585	1,464	2,049	0.39	0.17	0.20
	Other .....	2,088	671	2,759	1.38	0.08	0.27
73	Transport equipment .....	3,011	11,069	14,080	1.99	1.28	1.39
63	Veneers, plywood boards and reconstituted wood .....	2,020	61	2,081	1.34	0.01	0.21
26	Wool—						
	Degreased (washed, scoured, etc.) .....	1,116	7,421	8,537	0.74	0.86	0.84
	Greasy (including stipe) .....	5,016	84,736	89,752	3.32	9.83	8.86
	Other .....	152	2,136	2,289	0.10	0.25	0.23
	All other commodities .....	18,483	40,777	59,260	12.23	4.73	5.85
	TOTAL .....	151,093	862,421	1,013,514	100.00	100.00	100.00

(a) Less than 0.005 per cent. (b) Less than \$500. (c) Includes edible offals, poultry and rabbits. (d) Principally pig-iron, cast iron, basic shapes and sections.

VALUE OF PRINCIPAL EXPORTS TO AUSTRALIAN STATES—SELECTED COMMODITIES  
(\$'000)

Division	Description	1969-70	1970-71						
		Total	N.S.W. (a)	Vic.	Qld	S.A.	Tas.	N.T.	Total
00	Animals (live)—								
	Cattle .....	718	14	20	200	200	....	681	1,115
	Sheep .....	785	....	3	....	3	....	....	6
51	Chemical elements and compounds .....	12,171	1,249	14,082	338	285	....	2	15,955
84	Clothing and clothing accessories and articles of knitted or crocheted fabric .....	638	258	192	63	237	19	21	790
29	Crude animal and vegetable materials, n.e.i.—								
	Animal casings (sausage), etc. ....	260	180	17	6	37	....	....	239
	Clover seed .....	190	59	61	1	139	....	....	260
	Food—								
02	Butter .....	236	....	....	....	....	....	321	321
06	Confectionery, excluding chocolate .....	345	89	138	35	45	12	3	321
03	Fish and fish preparations—								
	Fresh, chilled or frozen .....	633	545	785	6	75	13	....	1,423
	Canned or bottled, n.e.i., and fish preparations .....	483	272	393	49	76	....	(b)	791
01	Meat and meat preparations—								
	Fresh, chilled or frozen .....	1,378	289	261	293	30	....	429	1,301
	Other .....	265	1	8	....	19	....	304	331
05	Vegetables, fresh—								
	Potatoes (except sweet potatoes) ....	55	104	20	3	2	....	27	156
	Other .....	214	....	1	....	135	....	5	141
	Other food .....	1,348	213	350	9	582	2	403	1,559
85	Footwear, gaiters and similar articles .....	1,585	720	244	281	165	72	5	1,487
82	Furniture .....	1,570	593	642	380	426	28	52	2,121
99	Gold bullion .....	8,306	3,041	....	....	....	....	....	3,041
21	Hides, skins and fur skins, undressed—								
	Bovine .....	458	105	110	....	55	....	....	270
	Sheep and lamb .....	42	....	22	....	3	....	....	24
	Other .....	547	308	40	43	69	....	....	460
	Machinery—								
72	Electrical machinery and apparatus—								
	Electric power machinery (c) .....	955	119	452	72	141	1	5	790
	Other .....	197	88	51	50	49	3	18	259
71	Other than electric—								
	Agricultural—								
	Tractors .....	2,832	1,038	796	570	514	....	....	2,918
	Other .....	626	113	73	103	28	(b)	1	317
	Sorting, screening, crushing, mixing, for earth, stone, ores or other mineral substances .....	579	171	374	214	44	12	34	849
	Other .....	5,817	3,074	1,550	932	909	46	144	6,655
28	Metalliferous ores and metal scrap—								
	Ores, metalliferous—								
	Ilmenite .....	517	....	....	....	....	567	....	567
	Iron .....	6,521	14,101	....	....	....	....	....	14,101
	Manganese .....	....	....	....	....	....	....	....	....
	Tin .....	212	240	....	....	....	....	....	240
	Other .....	3	1,088	....	....	....	....	....	1,088
	Metal waste and scrap—								
	Ferrous .....	49	13	(b)	....	....	....	4	17
	Non-ferrous .....	3,752	1,304	675	....	505	....	....	2,484
69	Metal manufactures, n.e.i.—								
	Household equipment of base metals .....	429	6	7	6	6	(b)	1	27
	Other .....	1,900	642	307	38	402	180	128	1,697
	Metals—								
67	Iron and steel (d) .....	20,786	3,604	2,257	425	6,608	21	506	13,421
33	Petroleum and petroleum products .....	46,032	9,653	13,857	656	10,433	1,169	4,002	39,769
62	Rubber manufactures, n.e.i. ....	1,888	795	541	112	137	2	6	1,594
26	Textile fibres and their waste—								
	Cotton fibre .....	559	1,348	....	....	....	....	....	1,348
	Wool—								
	Degreased (washed, scoured, etc.)....	1,160	6	973	....	137	....	....	1,116
	Greasy (including slipe) .....	8,633	284	4,038	....	690	4	....	5,016
	Other .....	155	....	130	....	22	....	....	152
24	Timber—								
	Sleepers, railway .....	808	....	....	....	582	....	4	585
	Other .....	2,349	138	296	(b)	1,371	....	282	2,088
73	Transport equipment—								
	Road motor vehicles (e) .....	649	352	302	156	118	6	18	953
	Other .....	846	418	65	180	254	105	1,035	2,058
63	Wood and cork manufactures (f)—								
	Veneers, plywood boards, etc. ....	2,057	469	935	11	545	40	20	2,020
	Cork manufactures .....	431	183	120	111	31	....	2	446
	Other .....	41	(b)	56	10	(b)	(b)	1	68
	All other commodities .....	6,849	6,336	6,185	883	1,712	114	1,105	16,334
	TOTAL .....	149,861	53,622	51,430	6,233	27,820	2,419	9,569	151,093

(a) Includes the value of exports to the Australian Capital Territory. (b) Less than \$500. (c) Including switchgear.  
(d) Principally pig-iron, cast iron, basic shapes and sections. (e) Including components. (f) Excluding furniture.

The value of overseas exports from Western Australia to the principal countries of destination in 1970-71 is classified in the following table according to the Divisions of the *Australian Export Commodity Classification* (see page 414).

VALUE OF OVERSEAS EXPORTS TO PRINCIPAL COUNTRIES OF DESTINATION  
DIVISIONS OF THE EXPORT COMMODITY CLASSIFICATION: 1970-71  
(\$'000)

Division	Description	Japan	United Kingdom	United States of America	Germany, Federal Republic of	Singapore	France	Other	Total
00	Live animals .....	.....	.....	.....	.....	1,316	.....	1,713	3,029
01	Meat and meat preparations .....	2,923	2,954	13,930	94	1,928	70	6,913	28,813
02	Dairy products and eggs .....	195	193	.....	.....	178	.....	188	753
03	Fish and fish preparations .....	3,044	117	19,199	5	56	516	424	23,360
04	Cereals and cereal preparations .....	19,415	35,342	.....	9,299	4,833	.....	(a)95,668	164,558
05	Fruit and vegetables .....	.....	2,703	504	606	2,592	.....	2,352	8,757
06	Sugar, sugar preparations and honey .....	9	143	.....	22	51	.....	235	460
07	Coffee, cocoa, tea, spices and manufactures thereof .....	.....	.....	.....	.....	.....	.....	11	11
08	Feeding-stuff for animals (excluding unmilled cereals) .....	189	2	.....	.....	100	.....	155	446
09	Miscellaneous preparations chiefly for food .....	.....	(b)	.....	.....	1	.....	44	45
11	Beverages .....	1	22	14	(b)	98	(b)	231	367
12	Tobacco and tobacco manufactures .....	.....	(b)	.....	.....	11	.....	24	35
21	Hides, skins and fur skins, undressed .....	88	287	75	299	15	2,135	1,741	4,641
22	Oil-seeds, oil nuts and oil kernels .....	469	.....	.....	.....	(b)	.....	(b)	469
24	Wood, timber and cork .....	(b)	1,511	21	41	(b)	.....	363	2,135
25	Pulp and waste paper .....	.....	.....	.....	.....	2	.....	37	39
26	Textile fibres and their waste .....	33,458	6,026	680	11,963	50	7,120	(c)35,523	94,820
27	Crude fertilisers and crude minerals (excluding coal, petroleum and precious stones) .....	9,644	(b)	4	.....	43	40	596	10,329
28	Metalliferous ores and metal scrap .....	315,538	9,761	6,334	9,811	(b)	8,484	(d)33,806	383,733
29	Crude animal and vegetable materials, n.e.i. ....	98	127	82	84	206	17	680	1,294
32	Coal, coke and briquettes .....	10	.....	(b)	.....	.....	.....	11	11
33	Petroleum and petroleum products .....	(b)	(b)	(b)	(b)	473	.....	6,375	6,848
41	Animal oils and fats .....	884	792	300	348	317	109	1,727	4,477
43	Animal and vegetable oils and fats, processed, and waxes of animal or vegetable origin .....	19,149	240	.....	15	.....	.....	3	258
51	Chemical elements and compounds .....	.....	11	24,965	.....	9	3	1,276	45,413
52	Mineral tar and crude chemicals from coal, petroleum and natural gas .....	.....	.....	.....	.....	.....	.....	.....	.....
53	Dyeing, tanning and colouring materials .....	.....	7	465	5	426	.....	2,494	3,396
54	Medicinal and pharmaceutical products .....	.....	.....	.....	.....	20	1	11	32
55	Essential oils and perfume materials, toilet, polishing and cleansing preparations .....	1	49	41	12	39	24	219	387
56	Fertilisers, manufactured .....	.....	.....	.....	.....	(b)	.....	(b)	(b)
57	Explosives and pyrotechnic products .....	.....	.....	.....	.....	.....	.....	(b)	(b)
58	Plastic materials, regenerated cellulose and artificial resins .....	2	7	.....	.....	9	.....	2	21
59	Chemical materials and products, n.e.i. ....	.....	234	.....	.....	39	.....	40	312
61	Leather, leather manufactures, n.e.i. and dressed fur skins .....	.....	32	.....	44	277	.....	109	462
62	Rubber manufactures, n.e.i. ....	.....	.....	.....	.....	4	.....	9	13
63	Wood and cork manufactures (excluding furniture) .....	.....	9	8	.....	55	.....	47	120
64	Paper, paperboard and manufactures thereof .....	.....	(b)	(b)	.....	139	.....	144	283
65	Textile yarn, fabrics, made-up articles and related products .....	5	2	9	.....	.....	(b)	16	32
66	Non-metallic mineral manufactures, n.e.i. ....	86	17	10	1	95	.....	519	729
67	Iron and steel .....	17,944	7	1	113	11	17	3,056	21,150
68	Non-ferrous metals .....	146	11,562	899	7,679	12	841	5,886	27,025
69	Manufactures of metal, n.e.i. ....	26	39	131	10	28	5	136	375
71	Machinery, other than electric .....	311	497	539	8	678	.....	2,675	4,708
72	Electrical machinery, apparatus and appliances .....	21	173	212	1	42	3	183	634
73	Transport equipment .....	2,445	43	212	4	7,608	.....	757	11,069
81	Sanitary, plumbing, heating and lighting fixtures and fittings .....	.....	.....	(b)	.....	28	.....	34	62
82	Furniture .....	.....	(b)	(b)	.....	14	3	89	106
84	Clothing and clothing accessories, and articles of knitted or crocheted fabric .....	2	(b)	2	.....	4	.....	13	22
86	Professional, scientific and controlling instruments; photographic and optical goods; watches and clocks .....	(b)	73	154	1	76	1	295	601
89	Miscellaneous manufactured articles, n.e.i. ....	74	182	38	(b)	52	1	225	572
	Other .....	2,454	288	295	16	67	1	2,089	5,209
	TOTAL .....	428,633	73,457	69,126	40,480	22,000	19,391	209,334 (e)	862,421

(a) Includes China, People's Republic of, \$19.5 million; Iran, \$15.5 million; United Arab Republic, \$9.29 million; Malaysia, \$6.06 million; Taiwan, \$5.64 million; Iraq, \$5.47 million; Pakistan, \$5.19 million; Italy, \$4.67 million; Sudan, \$3.62 million; and Netherlands, \$3.34 million. (b) Less than \$500. (c) Includes U.S.S.R., \$10.3 million; Italy, \$5.02 million; Belgium-Luxembourg, \$4.40 million; and India, \$4.33 million. (d) Includes Canada, \$14.2 million; Italy, \$7.76 million; and Belgium-Luxembourg, \$5.56 million. (e) Includes an amount of \$129.8 million, representing the value of exports detailed in footnotes (a), (c) and (d).

The following table gives a classification of Western Australia's principal export commodities according to their main countries of destination in 1970-71.

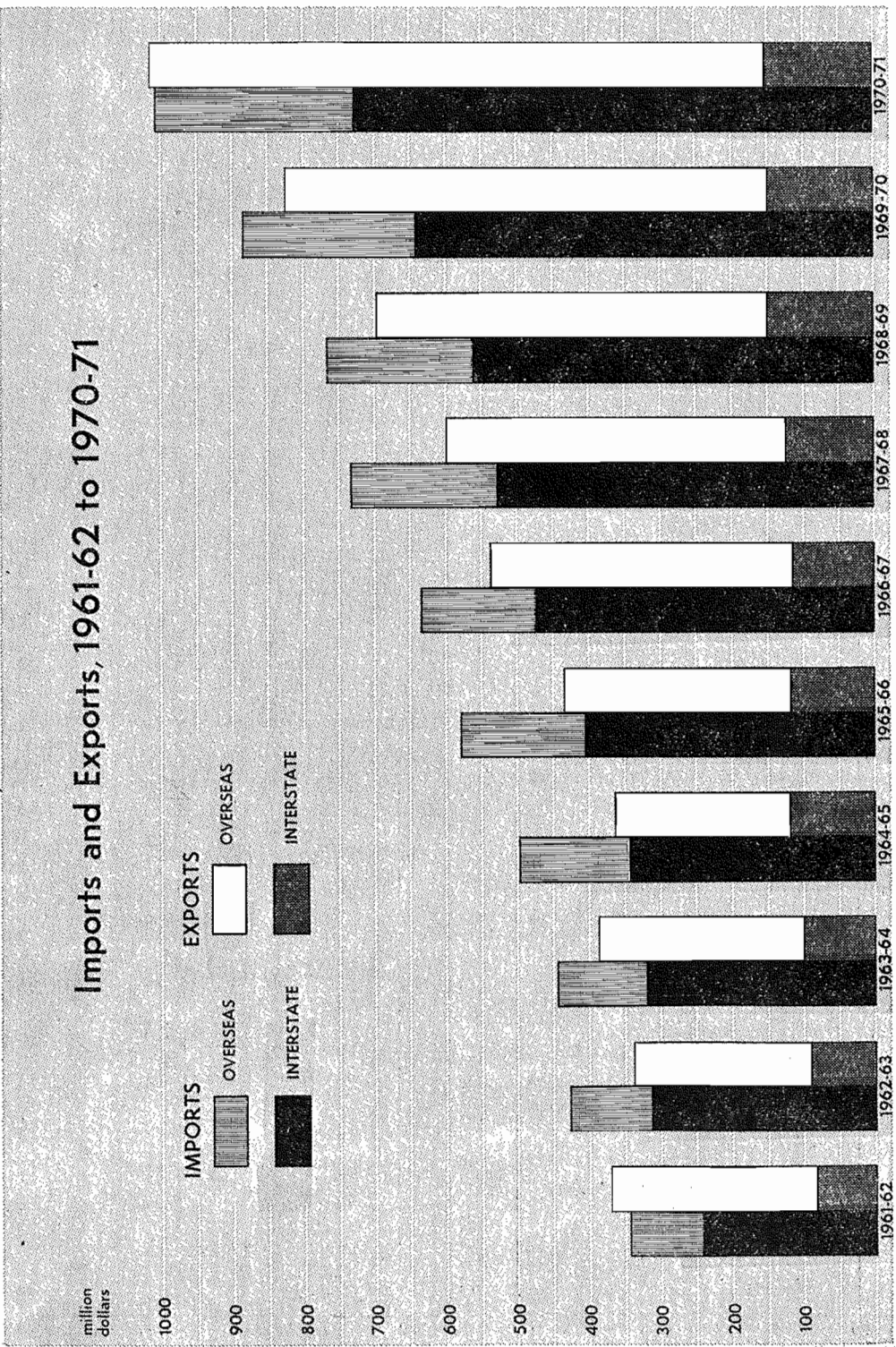
VALUE OF OVERSEAS EXPORTS OF PRINCIPAL COMMODITIES  
MAIN COUNTRIES OF DESTINATION (a): 1970-71  
\$'000

Division	Description and destination	Value	Division	Description and destination	Value
04	Food—		01	Meat, fresh, chilled or frozen— <i>continued</i>	
	Cereals and cereal preparations—			Other (b)—	
	Barley, unmilled—			United Kingdom	789
	United Kingdom	7,313		Japan	300
	Germany, Federal Republic of	5,918		Singapore	283
	Taiwan	2,959	28	Ores, metalliferous—	
	Japan	2,409		Ilmenite—	
	Netherlands	881		United Kingdom	2,595
	Iraq	756		Japan	1,267
	Italy	644		United States of America	998
	Vietnam, Republic of	347		France	898
	Kuwait	280		Iron—	
	Flour of wheat—			Japan	282,764
	Indonesia	472		Germany, Federal Republic of	9,663
	Trucial States	391		Italy	7,719
	Saudi Arabia	339		France	7,488
	Oats, unmilled—			United Kingdom	6,507
	Germany, Federal Republic of	3,381		Belgium-Luxembourg	5,178
	Italy	2,671		United States of America	4,684
	Netherlands	2,454		Greece	2,302
	Japan	398		Netherlands	325
	Wheat, unmilled—			Manganese—	
	United Kingdom	28,026		Japan	2,584
	China, People's Republic of	19,466		Tin—	
	Japan	16,350		Spain	1,096
	Iran	15,454	33	Petroleum and petroleum products—	
	United Arab Republic	9,287		New Zealand	2,237
	Malaysia	5,970		Fiji	867
	Pakistan	5,190		Malaysia	735
	Singapore	4,795		Christmas Island (Indian Ocean)	687
	Iraq	4,715		Singapore	473
	Sudan	3,618		South Africa	426
	Taiwan	2,684		Kenya	406
	Hong Kong	2,615		Sudan	382
	Mozambique	2,394		Papua and New Guinea	308
	Zambia	1,590		New Caledonia	301
	Korea, Republic of	1,403	21	Skins and hides—	
	Italy	1,358		Bovine—	
	Thailand	1,277		Hong Kong	343
	Peru	1,169		South Africa	283
	Lebanon	1,167		Sheep and lamb—	
	India	890		France	2,132
	Korea (North)	684		Italy	502
	Tanzania	392		Germany, Federal Republic of	280
03	Fish, fresh, chilled or frozen—		24	Timber—	
	Rock lobster tails—			United Kingdom	1,511
	United States of America	19,007	26	Wool—	
05	Fruit, fresh—			Degreased (washed, scoured, etc.)—	
	Apples—			United Kingdom	2,033
	United Kingdom	2,605		Germany, Federal Republic of	1,549
	Singapore	1,039		Union of Soviet Socialist Republics	826
	Germany, Federal Republic of	606		Italy	779
	United States of America	504		India	494
	Netherlands	331		United States of America	289
	Ireland	260		Iran	278
	Grapes—			Greasy (including slip)—	
	Singapore	295		Japan	33,377
01	Meat, fresh, chilled or frozen—			Germany, Federal Republic of	10,049
	Beef and veal—			Union of Soviet Socialist Republics	9,487
	United States of America	13,693		France	6,892
	Singapore	812		Belgium-Luxembourg	4,119
	United Kingdom	791		Italy	3,986
	Union of Soviet Socialist Republics	701		United Kingdom	3,909
	Japan	633		India	3,646
	Malta	248		Turkey	1,398
	Mutton and lamb—			Yugoslavia	1,202
	Japan	1,990		Poland	1,140
	United Kingdom	1,374		Taiwan	1,074
	Union of Soviet Socialist Republics	1,049		Czechoslovakia	776
	Greece	836		Spain	701
	Singapore	794		Germany, East	507
	Trucial States	592		United Arab Republic	440
	Kuwait	520		United States of America	382
	Malaysia	333		Netherlands	292
	Iran	321		Portugal	288
	Canada	263		Hungary	263

(a) See page 421 for total values of overseas exports of the several commodities shown.  
offals, poultry, rabbits, and goat and kangaroo meat.

(b) Comprises pigmeat, edible

Imports and Exports, 1961-62 to 1970-71



## AVERAGE EXPORT VALUES

The following table shows the annual average export values, during the five years ended 30 June 1971, of a number of Western Australia's principal export commodities. The figures are based on *total* exports (interstate and overseas) and represent the value f.o.b., or its equivalent, at the point of final shipment.

ANNUAL AVERAGE EXPORT VALUES OF SPECIFIED COMMODITIES (\$)

Description	Unit	1966-67	1967-68	1968-69	1969-70	1970-71
Apples, fresh .....	busbel	3.30	3.37	3.39	3.75	3.39
Cereals and cereal preparations—						
Barley .....	"	1.12	1.05	0.97	0.81	1.05
Oats .....	"	0.82	0.82	0.71	0.63	0.78
Wheat .....	"	1.49	1.40	1.40	1.30	1.33
Wheaten flour .....	cental (a)	3.27	3.19	3.14	3.28	3.33
Meat, fresh, chilled or frozen—						
Beef .....	lb	0.32	0.35	0.38	0.41	0.40
Lamb .....	"	0.21	0.24	0.17	0.20	0.19
Mutton .....	"	0.17	0.16	0.15	0.17	0.17
Pork .....	"	0.38	0.39	0.40	0.37	0.36
Ores, metalliferous—						
Ilmenite .....	ton	10.17	10.20	10.50	10.75	11.97
Iron (b) .....	"	8.41	8.33	8.55	7.90	7.57
Manganese .....	"	21.95	21.15	20.58	19.56	17.64
Potatoes .....	cwt	2.01	2.41	2.66	2.12	2.76
Rock lobster tails .....	lb	1.73	2.08	2.56	2.39	2.79
Skins and hides—						
Bovine .....	"	0.18	0.13	0.15	0.15	0.13
Sheep and lamb, with wool .....	"	0.30	0.21	0.23	0.23	0.17
Timber—						
Railway sleepers .....	100 sup. ft	12.53	13.73	13.42	14.79	16.07
Other (c) .....	"	12.85	13.80	13.66	13.42	13.20
Wool—						
Greasy (including slips) .....	kg (d)	1.17	1.01	1.08	0.98	0.75
Degreased (washed, scoured, etc.) .....	"	1.32	1.09	1.29	1.36	0.92

(a) Cental = 100 lb. (b) The averages shown relate to overseas exports only. (c) Excluding plywood and veneers  
(d) 1 kilogram = 2.2 lb approx.

## SHIPS' STORES

The following table shows the quantity and value of ships' stores loaded on board vessels at Western Australian ports during the years 1968-69 to 1970-71. The value of ships' stores is excluded from all tables appearing elsewhere in this Part.

EXPORTS IN THE FORM OF SHIPS' STORES (a)

Description	Unit	1968-69		1969-70		1970-71	
		Quantity	Value	Quantity	Value	Quantity	Value
Beverages, alcoholic .....	'000 gallons	179	\$'000 190	200	\$'000 215	210	\$'000 236
Foodstuffs—							
Fresh, chilled or frozen—							
Eggs in shell .....	'000 dozen	174	109	182	116	195	127
Fish .....	'000 lb	297	214	262	180	230	189
Fruit .....	"	111	111	97	97	118	118
Meat .....	'000 lb	2,393	850	1,937	716	1,905	780
Vegetables .....	"	276	276	237	237	267	267
All other foodstuffs .....	"	315	315	315	315	394	394
Fuel for ships and aircraft—							
Coal .....	ton	4	(b)	39	2	76	3
Other (bunker oil, etc.) .....	'000 gallons	129,200	10,882	143,687	11,098	163,624	16,128
Lubricants .....	"	293	293	787	787	490	490
All other ships' stores .....	"	1,085	1,085	1,329	1,329	1,830	1,830
Total (a) .....	n.a.	n.a.	14,327	n.a.	15,092	....	20,561

n.a. denotes 'not applicable'.

(a) Includes interstate ships' stores valued at \$1,174,963 in 1968-69, \$1,231,980 in 1969-70 and \$1,895,626 in 1970-71. Where the value of overseas ships' stores recorded in any one entry is less than \$250, the stores concerned are not allocated according to commodity, but are included in the item *All other ships' stores*. (b) Less than \$500.

## OVERSEAS IMPORTS AND EXPORTS

The following table shows the total value of Australia's overseas imports and exports, together with the proportion handled at Western Australian ports, during each of the years 1961-62 to 1970-71.

## OVERSEAS TRADE OF AUSTRALIA—TOTAL VALUE AND PROPORTION HANDLED AT WESTERN AUSTRALIAN PORTS

Year	Value of Australian trade (\$'000)			Proportion handled at Western Australian ports (per cent)		
	Imports	Exports	Total	Imports	Exports	Total
1961-62	1,769,492	2,154,568	3,924,060	5.66	13.37	9.90
1962-63	2,162,669	2,151,811	4,314,480	5.21	11.50	8.35
1963-64	2,372,658	2,782,460	5,155,118	5.13	10.30	7.92
1964-65	2,904,703	2,651,449	5,556,152	5.29	9.17	7.14
1965-66	2,939,492	2,720,953	5,660,445	5.98	11.55	8.66
1966-67	3,045,341	3,023,925	6,069,266	5.23	13.93	9.57
1967-68	3,264,473	3,044,675	6,309,148	6.34	15.61	10.81
1968-69	3,468,505	3,366,073	6,834,578	5.87	16.23	10.97
1969-70	3,881,227	4,131,618	8,012,845	6.24	16.34	11.45
1970-71	4,150,073	4,375,272	8,525,345	6.70	19.71	13.38

## CUSTOMS AND EXCISE

## The Customs Tariff

The first Commonwealth Customs Tariff was introduced on 8 October 1901, from which date uniform duties came into effect throughout Australia. The Australian Customs Tariff has been developed in conformity with the policy of protecting economic and efficient Australian industries and of granting preferential treatment to imports from certain countries. Duties are imposed on some goods, generally of a luxury nature, for revenue purposes. Customs collections are a major source of revenue, but in its protective character the tariff has an important influence on the Australian economy.

The particulars appearing in the tables in this section have been extracted from the bulletin *Overseas Trade* published annually by the Commonwealth Statistician, Canberra. The bulletin contains details showing, for each State and Territory, a dissection of customs revenue according to Customs Tariff Division, and excise revenue according to Excise Tariff Item and rate of duty.

CUSTOMS AND EXCISE—GROSS COLLECTIONS IN WESTERN AUSTRALIA (a)  
(\$'000)

Tariff	1966-67	1967-68	1968-69	1969-70	1970-71
Customs duty (a)	13,569	19,468	21,202	24,649	32,262
Excise duty—					
Petroleum products	20,224	22,105	24,656	26,743	34,372
Spirits, potable	980	1,051	1,163	1,252	1,300
Tobacco, cigars, cigarettes, etc.	13,147	13,960	15,250	17,258	20,536
Other (b)	23,825	25,787	28,220	31,384	32,770
Total, excise (a) (b)	58,176	62,903	69,289	76,637	88,978
GRAND TOTAL (b)	71,745	82,371	90,490	101,286	121,240

(a) For net collections see page 269.  
available for publication.

(b) Includes excise on beer, playing cards and matches, details of which are not

The following table shows the rates of excise duty applying to certain commodities during the year 1970-71, the quantities of goods excised in Western Australia and Australia at those rates, and the gross amounts of revenue collected. For a more detailed analysis, including particulars for each State and Territory, the reader is referred to the annual bulletin *Overseas Trade* to which reference is made earlier in this section.

The figures shown in the table refer to amounts *collected* in Western Australia. It is important to note that excise duty levied on a particular commodity may have been paid in a State other than that in which it is consumed. For this reason the amounts shown for Western Australia do not necessarily represent the duty paid in respect of Western Australian consumption.

EXCISE DUTY—GROSS COLLECTIONS CLASSIFIED ACCORDING TO COMMODITY  
WESTERN AUSTRALIA AND AUSTRALIA: 1970-71

Commodity	Unit of quantity	Rate of duty per unit of quantity	Western Australia		Australia	
			Quantity	Gross collections	Quantity	Gross collections
		\$	'000 units	\$'000	'000 units	\$'000
Alcoholic beverages—						
Beer .....	gal	1.1375	(a)	(a)	336,607	382,890
Spirits (potable)—	pf gal					
Brandy .....	"	8.00	85	678	1,181	9,441
Gin .....	"	11.30	14	156	265	2,989
Whisky .....	"	11.10	13	148	355	3,939
Rum .....	"	11.30	8	93	508	5,739
	"	11.40	(b)	(b)	6	68
Liquours .....	"	11.20	4	43	101	1,131
Vodka .....	"	11.20	12	135	173	1,940
Flavoured spirituous liquors .....	"	11.20	4	47	46	519
Other .....	"	12.20	(b)	1	(b)	4
Grape wine for commercial purposes .....	gal	(c) 0.50	1,013	507	18,497	9,250
Spirits (non-potable) for fortifying wine .....	pf gal	(d) 0.40	7	3	644	252
Tobacco, cigars, cigarettes, etc.—						
Tobacco, manufactured .....	lb	0.69	10	7	17	12
	"	(e) 2.173	....	....	4	10
	"	(f) 2.273	....	....	22	52
	"	(e) 2.24	132	296	1,574	3,525
	"	(f) 2.44	370	932	4,888	11,955
Cigars, machine-made .....	"	(e) 3.35	....	....	64	214
	"	(f) 3.85	(b)	1	96	368
Cigarettes, machine-made .....	"	(e) 4.20	1,032	4,335	13,462	56,538
	"	(f) 4.70	3,164	14,873	42,550	200,133
Cigarette papers and tubes .....	60 papers or tubes	0.0145	6,291	91	59,224	859
Petroleum products—						
Gasoline—						
Aviation .....	gal	(e) 0.0957	....	....	1,389	133
	"	(f) 0.1257	20	2	7,862	988
	"	(e) 0.123	....	....	15	2
	"	(f) 0.153	....	....	62	9
Other .....	"	(e) 0.123	31,044	3,818	346,376	42,604
	"	(f) 0.153	164,739	25,205	1,800,878	275,534
Aviation turbine kerosene .....	"	(e) 0.079	2,400	190	21,055	1,663
	"	(f) 0.109	14,582	1,589	135,806	14,803
Diesel fuel .....	"	(e) 0.125	4,263	533	42,206	5,276
	"	(f) 0.155	19,580	3,035	165,361	25,659
Playing cards .....	doz packs	1.00	(a)	(a)	135	135
Matches .....	60 gross	0.65	(a)	(a)	3,513	2,290
Coal—						
Home consumption .....	ton	0.044	1,171	52	20,614	907
Export .....	"	0.022	....	....	2,546	56
	"	0.033	1	(b)	14,340	473
Canned fruit .....	dozen containers	0.0125	....	....	100	1
	"	0.025	....	....	2,720	68
	"	0.05	111	6	4,742	237
	"	0.175	....	....	156	27
Other .....	n.a.	n.a.	n.a.	(g) 32,203	n.a.	237
Total, Gross collections .....	n.a.	n.a.	n.a.	88,978	n.a.	1,062,933

n.a. denotes 'not applicable'.

(a) Not available for publication. (b) Less than 500. (c) Introduced 19 August 1970. (d) Abolished with effect from 19 August 1970. (e) Operative to 18 August 1970. (f) Operative from 19 August 1970. (g) Includes excise duty paid on beer, playing cards and matches; see footnote (a).

## Chapter IX—continued

### Part 2—Internal Trade

#### CENSUSES OF WHOLESALE, RETAIL AND SELECTED SERVICE ESTABLISHMENTS

##### CENSUS OF RETAIL ESTABLISHMENTS

Details of the structure and pattern of retail trade throughout Australia have been obtained in periodic Censuses of Retail Establishments. For each of the years 1947-48, 1948-49, 1952-53, 1956-57 and 1961-62 a census was conducted which covered the retail trading activities of all establishments selling to the general public from fixed premises such as shops, rooms, kiosks and yards. In addition, these censuses included some details of the activities of service establishments (e.g. motor repair workshops, hairdressers, boot repairers, cafes and restaurants) and supplementary collections were conducted relating to the activities of licensed clubs, motion picture theatres, laundries and dry cleaners. Data from these censuses were published by the Commonwealth Statistician, Canberra, in a series of special bulletins for each State and Territory and for Australia as a whole.

The Census of Retail Establishments provides a framework for the quarterly sample surveys designed to measure variations in the value of retail sales throughout the inter-censal period—see page 436.

##### INTEGRATED ECONOMIC CENSUSES

In 1968-69 the first Integrated Economic Censuses were conducted covering mining, manufacturing, electricity and gas, wholesale, retail and selected service industries. The Integrated Censuses were planned to permit the aggregation and comparison of data from each of these major sectors of economic activity. This was not possible previously due to the independent development of mining, manufacturing and retail censuses with consequent gaps and overlaps in scope, inconsistent definitions and differences in the type and range of data collected. In addition, the Integrated Economic Censuses introduced the first full-scale coverage of wholesale establishments. A detailed account of the changes introduced by the Integrated Censuses is given in the *Appendix* of the *Western Australian Year Book*, No. 10—1971.

Data from two of the Integrated Economic Censuses, namely the *Census of Retail and Selected Service Establishments, 1968-69* and the *Census of Wholesale Establishments, 1968-69* are presented in this Part. Classification of establishments to the industries included in these censuses was based on principles set out in the Bureau publication *Australian Standard Industrial Classification (Preliminary Edition), 1969, Vol. 1*, referred to hereafter as ASIC. In general, an establishment was defined as a single physical location of an enterprise and was classified to an industry according to the predominant activity engaged in at that location. This was a departure from the practice of past Retail Censuses whereby a location was regarded as a retail establishment provided it made retail sales exceeding \$1,000 for the census year (i.e. regardless of predominant activity). In addition, data relating to establishments in the Integrated Economic Censuses covered all the activities of the establishment whereas, in previous Retail Censuses, only the retail activities of each establishment were recorded. Thus, for example, employment in retail establishments in the 1968-69 census included employees engaged in non-retail activities carried out in retail establishments (e.g. wholesaling or manufacturing).

A further refinement introduced in the Integrated Censuses was the concept of administrative offices and ancillary units. This concept recognised the existence of separately-located units within business enterprises which were engaged mainly in providing a service

(e.g. administration, transport, storage, etc.) to establishments within the enterprise. It was considered that the data for these units should be recorded with the industry of the establishments receiving the service rather than with the industry represented by the service rendered. Data for industries included in the Integrated Economic Censuses thus included components relating to administrative offices and ancillary units serving the establishments in the industry.

Definitions of the items appearing in the tables on pages 432 and 434 are as follows.

**NUMBER OF ESTABLISHMENTS.** These relate to establishments as such and do not include the numbers of separately-located administrative offices and ancillary units.

**PERSONS EMPLOYED.** Working proprietors at the end of June 1969 and employees on the pay-roll of the last pay-period in June 1969, including those working at separately-located administrative offices and ancillary units in the State. For retail and selected service establishments, unpaid members of the proprietor's family and other unpaid helpers working at least fifteen hours during the last week of June 1969 are also included.

**SALARIES AND WAGES.** The salaries and wages of all employees of the establishment, including those working at separately-located administrative offices and ancillary units in the State. Amounts drawn by working proprietors are not included.

**TURNOVER.** Sales of goods (retail and wholesale) owned by the enterprise, commissions received on sales or purchases of goods owned by other enterprises, and all other operating revenue from outside the enterprise such as repair and service revenue, rent and leasing revenue from retail or wholesale activities (as defined in ASIC), and takings from meals and accommodation, theatre admissions, hairdressing, laundry and dry cleaning. Transfers out from one establishment of an enterprise to another are included at commercial values for wholesale establishments but are excluded for retail and selected service establishments and recorded instead as purchases of the receiving establishments. Also includes goods withdrawn from stock for own use as fixed tangible assets or for rental or lease. Rent and leasing revenue from other than wholesale or retail activities, interest and receipts from sales of fixed tangible assets are excluded.

**PURCHASES, TRANSFERS IN AND SELECTED EXPENSES.** Purchases of goods for resale and materials for manufacturing, plus transfers in from other establishments of the enterprise other than retail establishments, charges for commission and sub-contract work, purchases of wrapping and packaging materials, electricity and fuel, repair and maintenance expenses, outward freight and cartage, motor vehicle running expenses and sales commission payments.

**VALUE ADDED.** Sales, transfers out and other operating revenue plus increase (or less decrease) in the value of stocks, less purchases, transfers in and selected expenses.

**SALES OR PURCHASES ON COMMISSION (WHOLESALE ESTABLISHMENTS ONLY).** Value of sales or purchases of goods owned by other enterprises and arranged by wholesale establishments or their agents, whether from stocks held on consignment or by direct delivery to customers from stocks held by other enterprises.

#### CENSUS OF RETAIL AND SELECTED SERVICE ESTABLISHMENTS, 1968-69

Retail establishments included in this census were defined by the ASIC as establishments engaged mainly in the resale of new or used goods to final consumers for household or personal consumption, or in various other activities such as custom tailoring and dress-making, clothing repair and alteration, making-up, installation and repair of blinds, awnings and curtains, shoe repairs, repair of household appliances, watch, clock and jewellery repairs, panel beating, motor vehicle repairs and tyre retreading. The selected service establishments included in the census were motion picture theatres, cafes and restaurants, licensed hotels, motels and wine saloons, licensed clubs, laundries and dry cleaners, and hairdressers and beauty salons.

The following table gives revised preliminary results for the major variables collected in the Census of Retail and Selected Service Establishments, 1968-69. Direct comparisons with figures from previous retail censuses and from retail surveys are not possible due to changes in units, scope and items of data. Details for Australia appear in the second table.

RETAIL ESTABLISHMENTS AND SELECTED SERVICE ESTABLISHMENTS  
SUMMARY OF OPERATIONS: WESTERN AUSTRALIA, 1968-69 (a)

Industry group	Number of establishments operating at 30 June 1969	Persons employed (b)			Salaries and Wages (c)	Turnover	Purchases, transfers in and selected expenses	Value added
		Males	Females	Total				
					\$m	\$m	\$m	\$m
Retail establishments—								
Department, variety and general stores	282	2,654	7,089	9,743	17.4	138.5	104.2	34.0
Food stores	3,388	5,595	8,749	14,344	16.1	253.8	210.2	45.5
Bread and milk vendors	305	587	254	841	0.4	12.3	10.1	2.2
Clothing, fabrics and furniture stores	1,167	2,151	3,600	5,751	8.7	84.8	62.9	23.6
Household appliance and hardware stores	585	1,761	1,112	2,873	5.8	54.3	39.8	15.6
Motor vehicle dealers, petrol and tyre retailers	2,157	11,566	2,767	14,333	29.0	396.5	317.8	81.2
Other retailers	1,292	1,903	2,914	4,817	5.0	54.7	38.6	17.4
Total, Retail establishments	9,176	26,217	26,485	52,702	82.4	995.0	783.6	219.4
Selected service establishments—								
Motion picture theatres	125	533	421	954	1.3	6.1	2.3	3.7
Restaurants and licensed hotels	803	3,324	6,813	10,137	16.7	98.8	59.2	40.1
Licensed clubs	238	850	477	1,327	2.7	13.2	7.5	5.7
Laundries and dry cleaners	144	365	1,018	1,383	2.0	5.3	1.3	4.0
Hairdressing and beauty salons	677	599	1,847	2,446	2.2	6.3	1.3	5.1
Total, Selected service establishments	1,987	5,671	10,576	16,247	25.0	129.7	71.6	58.6
GRAND TOTAL	11,163	31,888	37,061	68,949	107.3	1,124.7	855.3	278.0

(a) See letterpress immediately preceding table.

(b) At end of June 1969; includes working proprietors and unpaid helpers

working at least 15 hours during the week.

(c) Excludes amounts drawn by working proprietors.

RETAIL ESTABLISHMENTS AND SELECTED SERVICE ESTABLISHMENTS  
SUMMARY OF OPERATIONS: AUSTRALIA, 1968-69 (a)

Industry group	Number of establishments operating at 30 June 1969	Persons employed (b)			Salaries and Wages (c)	Turnover	Purchases, transfers in and selected expenses	Value added
		Males	Females	Total				
					\$m	\$m	\$m	\$m
Retail establishments—								
Department, variety and general stores	2,716	37,052	74,706	111,758	227.2	1,625.3	1,212.1	430.0
Food stores	51,935	99,448	112,438	211,886	245.1	3,273.9	2,642.3	648.0
Bread and milk vendors	5,458	10,901	3,986	14,887	11.5	208.4	164.6	43.8
Clothing, fabrics and furniture stores	18,744	30,935	47,737	78,672	125.7	1,127.4	815.4	327.9
Household appliance and hardware stores	8,536	25,825	16,344	42,169	86.2	665.0	463.4	208.3
Motor vehicle dealers, petrol and tyre retailers	25,549	139,502	30,439	169,941	356.8	4,259.4	3,396.0	900.0
Other retailers	16,998	31,816	41,470	73,286	99.8	787.9	602.9	288.2
Total, Retail establishments	129,936	375,479	327,120	702,599	1,152.3	12,038.3	9,296.7	2,846.2
Selected service establishments—								
Motion picture theatres	939	4,918	4,130	9,048	13.3	54.4	21.2	33.2
Restaurants and licensed hotels	10,622	52,885	71,851	124,736	203.8	1,213.3	732.8	484.7
Licensed clubs	2,691	26,288	11,581	37,869	81.6	348.5	141.8	207.5
Laundries and dry cleaners	2,160	6,918	13,187	20,105	35.3	89.7	22.7	67.1
Hairdressing and beauty salons	9,843	7,634	21,270	28,904	28.4	86.7	17.9	69.2
Total, Selected service establishments	26,255	98,643	122,019	220,662	362.3	1,792.7	936.4	861.7
GRAND TOTAL	156,191	474,122	449,139	923,261	1,514.6	13,831.0	10,233.1	3,707.9

(a) See letterpress immediately preceding the previous table.

(b) At end of June 1969; includes working proprietors and unpaid helpers working at least 15 hours during the week.

(c) Excludes amounts drawn by working proprietors.

### Commodity Statistics

Details of retail (and wholesale) sales of groups of commodities were collected in the 1968-69 Integrated Economic Censuses. It will be noted, however, that the commodity groupings in the retail and wholesale censuses are, in most cases, not identical, and direct comparison is not possible. In addition, the retail and wholesale sales tables differ in scope in that the retail sales figures include sales by mining, manufacturing, and electricity and gas establishments, whereas the wholesale sales tables exclude them.

Retail sales were defined as the sale to final consumers of new or used goods of a type used mainly for household and personal purposes. Sales by retailers of commodities such as basic building materials, builders' hardware and builders' supplies, timber, commercial refrigerators and freezers, agricultural tractors, farm machinery and implements, construction and earthmoving equipment, grain, feed, fertilisers and agricultural supplies, and business machines and equipment, were treated as wholesale sales since the goods are of a type used mainly for commercial purposes.

The table below shows retail sales made by retail and selected service establishments, wholesale, mining, manufacturing, and electricity and gas establishments which operated during 1968-69. Details of retail sales obtained from the Integrated Economic Censuses differ from those recorded in the quarterly Survey of Retail Establishments (see table on page 436) and from previous censuses due to variations in scope and definition. Direct comparisons with figures from previous censuses and from retail surveys are therefore not possible.

INTEGRATED ECONOMIC CENSUSES, 1968-69—RETAIL SALES (a)  
NUMBER OF ESTABLISHMENTS AND VALUE OF RETAIL SALES BY COMMODITY ITEM

Commodity item	Number of establishments (a)	Value of retail sales (a)	Commodity item	Number of establishments (a)	Value of retail sales (a)
		\$'000			\$'000
Groceries, other food items, etc.—			Hardware (b)—		
Groceries ....	2,581	122,009	Domestic hardware, china, glassware (including garden equipment) ....	1,173	16,475
Fresh meat ....	1,154	45,992			
Fresh fruit and vegetables ....	1,657	21,291	Petrol, motor vehicles, boats, etc. (c)—		
Bread, cakes and pastries ....	2,101	11,373	Petrol, oils and motor lubricants, etc.	1,721	50,541
Delivered bread ....	25	4,279	New motor vehicles ....	328	118,682
Delivered milk ....	346	11,101	New parts and accessories for motor vehicles ....	1,263	15,956
Fish (fresh or cooked), chips, hamburgers, etc. ....	924	7,673	Used motor vehicles ....	411	81,575
Confectionery, ice cream, soft drinks, wrapped lunches, etc. ....	4,178	28,720	Used parts and accessories for motor vehicles ....	179	1,666
Beer, wine and spirits ....	1,094	87,706	New and used motor cycles, motor scooters ....	130	1,810
Cigarettes and other tobacco products	5,255	31,724	New and used motor tyres, tubes and batteries ....	1,329	20,164
			Boats, outboard motors, caravans ....	104	10,322
Furniture and floor coverings—			Miscellaneous—		
Furniture, mattresses, blinds, etc. including installation and repairs ....	461	23,141	Cosmetics, perfumes, toilet preparations, etc. ....	1,683	10,098
Floor coverings, carpets, lino, etc. including laying of floor coverings ....	278	10,505	Patent medicines and therapeutic appliances ....	1,242	8,991
Fabrics, clothing and footwear—			Prescription medicines ....	398	10,512
Fabrics, piece goods, manchester, blankets, soft furnishings, etc. ....	825	20,898	Photographic equipment and supplies	715	3,790
Clothing—			Watches, clocks, jewellery, silverware	691	7,524
Men's and boys' ....	889	29,853	Sporting goods, bicycles, toys, etc. ....	953	8,801
Women's, girls' and infants' ....	1,036	47,476	Books, stationery, newspapers, etc. ....	1,464	20,415
Footwear—			Antiques, disposal goods, secondhand goods (excluding goods traded in), etc. ....	198	2,090
Men's and boys' ....	624	6,071	Cut flowers, garden seeds, shrubs, etc.	285	1,876
Women's, girls' and infants' ....	579	10,595	Travel goods, brief cases, etc. ....	363	1,801
Household appliances—			Bottled liquefied petroleum gas ....	211	1,969
Radios, radiograms, tape recorders, etc.	434	5,891	Goods not included above ....	516	4,795
Musical instruments, records, etc. ....	346	3,850			
Television sets and accessories	270	6,586			
Domestic refrigerators and freezers	295	10,108			
Washing machines, stoves, household heating appliances, etc. ....	317	7,854			
Other household appliances ....	692	10,161			
			Total ....	(d)	964,710

(a) See letterpress immediately preceding table.

(b) Excludes basic building materials, builders' hardware and supplies such as tools of trade, paint, etc. See letterpress *Commodity Statistics* preceding table.

(c) Excludes tractors, farm machinery and implements, earthmoving equipment, etc. See letterpress *Commodity Statistics* preceding table.

(d) Many establishments show takings in more than one commodity item. Accordingly, the sum of the number of establishments showing sales for individual items will exceed the total number of retail and selected service, wholesale, mining, manufacturing and electricity and gas establishments reporting retail sales.

## CENSUS OF WHOLESALE ESTABLISHMENTS, 1968-69

This census covered all establishments defined by the ASIC as predominantly engaged in the resale (as agent or principal) of new or used goods to retailers or other wholesalers, or to institutional, professional or other business users (including farmers and builders). This definition included wholesale merchants, manufacturers' sales offices which held stocks, commission agents including import, export and purchasing agents, co-operatives and marketing boards. In addition, establishments engaged mainly in repairing farm machinery and business machines, or in leasing machinery and equipment for periods of one year or more without operators were classified to wholesaling.

The next two tables give revised preliminary results for the major variables collected in the Census of Wholesale Establishments, 1968-69, classified by industry group.

WHOLESALE ESTABLISHMENTS  
SUMMARY OF OPERATIONS: WESTERN AUSTRALIA, 1968-69 (a)

Industry group	Number of wholesale establishments operating during 1968-69	Persons employed (b)	Salaries and wages (c)	Turnover	Stocks at 30 June 1969	Purchases, transfers in and selected expenses	Value added	Sales or purchases on commission	Fixed capital expenditure (d)
			\$m	\$m	\$m	\$m	\$m	\$m	\$m
General wholesalers ....	57	1,308	3.2	41.6	6.8	36.0	6.7	20.7	0.4
Woolselling brokers, stock and station agents and farm suppliers ....	308	3,904	11.1	113.7	8.7	89.4	24.6	248.5	2.1
Wool buyers and farm products, n.e.c. ....	130	751	2.2	127.1	9.1	119.1	9.0	85.3	1.0
Petroleum and petroleum products ....	284	2,102	6.8	153.9	11.0	121.2	32.7	133.9	2.5
Minerals, metals and chemicals	104	834	2.5	48.3	8.2	42.1	8.0	15.1	0.3
Machinery and equipment	697	8,662	23.5	257.1	59.9	204.6	59.6	32.0	6.0
Building materials and supplies	391	4,513	11.9	122.7	17.2	98.7	26.1	20.3	1.5
Household appliances and hardware, furniture ....	146	1,317	3.6	47.1	6.4	37.3	10.6	24.1	0.6
Clothing, footwear and textiles	176	1,160	2.5	30.6	5.2	24.8	6.2	39.4	0.3
Food, beverages and tobacco products ....	385	4,797	11.8	259.9	19.6	230.5	32.9	51.1	2.6
Other wholesalers, n.e.c. ....	454	2,899	6.5	71.8	10.6	55.6	17.4	21.5	0.9
Total ....	3,132	32,247	85.7	1,273.8	162.7	1,059.4	233.7	691.9	18.2

n.e.c. denotes 'not elsewhere classified'.

(a) See letterpress immediately preceding table. (b) At the end of June 1969; includes working proprietors. (c) Excludes amounts drawn by working proprietors. (d) Outlay on fixed tangible assets less disposals.

WHOLESALE ESTABLISHMENTS  
SUMMARY OF OPERATIONS: AUSTRALIA, 1968-69 (a)

Industry group	Number of wholesale establishments operating during 1968-69	Persons employed (b)	Salaries and wages (c)	Turnover	Stocks at 30 June 1969	Purchases, transfers in and selected expenses	Value added	Sales or purchases on commission	Fixed capital expenditure (d)
			\$m	\$m	\$m	\$m	\$m	\$m	\$m
General wholesalers ....	436	9,345	26.6	348.4	46.6	299.1	51.3	268.6	2.6
Woolselling brokers, stock and station agents and farm suppliers ....	3,051	29,247	83.2	665.3	61.4	487.8	180.4	2,167.9	11.1
Wool buyers and farm products, n.e.c. ....	1,034	8,451	26.2	1,435.8	495.5	1,601.7	71.0	618.6	3.7
Petroleum and petroleum products ....	2,525	22,482	77.6	1,667.9	142.2	1,344.0	341.4	1,365.5	14.8
Minerals, metals and chemicals	1,405	15,942	53.8	1,198.7	170.5	1,053.5	170.2	280.2	9.7
Machinery and equipment	7,312	90,561	277.8	2,872.7	617.2	2,247.3	681.9	325.7	78.8
Building materials and supplies	5,125	50,078	136.7	1,446.9	190.0	1,173.5	284.6	245.5	14.8
Household appliances and hardware, furniture ....	1,681	15,771	44.7	620.1	83.6	510.0	121.1	215.5	4.3
Clothing, footwear and textiles	2,998	20,692	56.2	895.9	117.6	750.4	151.1	605.8	6.6
Food, beverages and tobacco products ....	4,871	56,329	153.9	3,485.2	226.7	3,073.5	415.7	627.2	26.9
Other wholesalers, n.e.c. ....	4,175	39,231	106.6	1,248.1	188.0	981.5	290.1	285.2	16.3
Total ....	34,613	358,129	1,043.3	15,885.0	2,339.2	13,522.4	2,758.8	7,005.7	189.6

(a) See letterpress immediately preceding the previous table. (b) At end of June 1969; includes working proprietors. (c) Excludes amounts drawn by working proprietors. (d) Outlay on fixed tangible assets less disposals.

## Commodity Statistics

Details of wholesale (and retail) sales of groups of commodities were collected in the 1968-69 Integrated Economic Censuses. It will be noted, however, that the commodity groupings in the retail and wholesale censuses are, in most cases, not identical, and direct comparison is not possible. In addition, the retail and wholesale sales tables differ in scope in that the retail sales figures include sales by mining, manufacturing, and electricity and gas establishments, whereas the wholesale sales tables exclude them.

Wholesale sales were defined as the resale of new and used goods to retailers or other wholesalers, or to institutional (including government), professional or other business users (including builders and farmers). The table below shows wholesale sales made by wholesale and retail and selected service establishments which operated during 1968-69. Data for wholesale sales are not free of duplication, in that they may include, for example, sales of the same goods from wholesaler to wholesaler and wholesaler to retailer, respectively. Wholesale sales on commission by agents are not included in the table.

Total wholesale sales on own account for Australia as a whole amounted to \$15,196.9 million.

INTEGRATED ECONOMIC CENSUSES, 1968-69  
VALUE OF WHOLESALE SALES BY COMMODITY ITEM (a)  
\$'000

Commodity item	Wholesale sales on own account (a)	Commodity item	Wholesale sales on own account (a)
<b>Agricultural and pastoral products and supplies—</b>		<b>Vehicles and transport equipment—continued</b>	
Livestock .....	2,631	Tyres and wet cell batteries .....	13,437
Wool .....	91,781	Other (aircraft, boats, etc.) .....	4,846
Hides, skins, raw furs, leather and tallow .....	9,898	<b>Household appliances, furniture, etc.—</b>	
Wheat and other cereal grains .....	23,575	Household appliances .....	33,450
Other farm products, n.e.i. ....	972	China, glassware, kitchenware, etc. ....	6,066
Farm and garden supplies .....	77,545	Garden equipment .....	954
<b>Metals and minerals—</b>		Furniture, mattresses and blinds .....	2,181
Iron and steel .....	37,170	Floor coverings .....	5,597
Scrap metal .....	5,274	<b>Clothing, footwear and textile products—</b>	
Other metals and minerals .....	5,782	Men's and boys' clothing .....	7,917
<b>Machinery and equipment including parts—</b>		Women's, girls' and infants' clothing .....	8,249
Agricultural machinery and implements .....	63,610	Footwear .....	1,462
Construction and earthmoving machinery .....	39,338	Textiles and textile products, n.e.i. ....	10,780
Industrial machinery for use in manufacturing, mining, etc. ....	54,974	<b>Foodstuffs—</b>	
Machinery and equipment for commercial and service establishments .....	7,475	Meat .....	38,358
Professional and scientific equipment .....	4,740	Dairy products, smallgoods and poultry .....	15,036
Business machines, including computers .....	7,115	Eggs and egg pulp .....	(b)
Electrical and electronic equipment, n.e.i. ....	29,190	Fresh fruit and vegetables .....	32,736
<b>Building materials and supplies—</b>		Fish .....	38,815
Timber, plywood and veneers .....	30,803	Confectionery .....	10,792
Glass .....	4,351	Groceries—Food lines only .....	50,245
Other basic building materials .....	25,633	Tea .....	3,121
Builders' hardware and supplies .....	80,421	Coffee .....	2,440
<b>Pharmaceuticals, toiletries and chemicals—</b>		Other food .....	1,545
Chemicals and allied products, n.e.i. ....	9,068	<b>Beverages and tobacco products—</b>	
Medical and pharmaceutical products .....	15,877	Soft drinks .....	1,134
Toiletries, perfumes and cosmetics .....	5,516	Wine and brandy .....	7,417
Soap and detergents .....	3,710	Beer and other spirits .....	7,512
<b>Petroleum, petroleum products and fuel—</b>		Cigarettes and other tobacco products .....	17,012
Petroleum and petroleum products .....	129,420	<b>Miscellaneous—</b>	
Liquefied petroleum gas .....	1,403	Books, periodicals and other printed matter .....	4,821
Coal, coke, briquettes and charcoal .....		Paper, paper products and stationery .....	14,631
<b>Vehicles and transport equipment—</b>		Photographic goods .....	4,699
Motor vehicles .....	36,224	Watches, clocks, jewellery, etc. ....	2,322
Motor cycles and scooters .....	(b)	Sporting goods and bicycles .....	3,984
Motor vehicle parts, accessories and engines....	21,927	Toys and games .....	2,776
		Fancy goods, gifts and souvenirs .....	2,191
		Secondhand goods, excluding motor vehicles .....	2,627
		Goods not included above .....	34,513
		<b>Total</b> .....	<b>1,225,797</b>

n.e.i. denotes 'not elsewhere included'.

(a) See letterpress immediately preceding table.

(b) Not available for publication

### Other Information Available

Further details about the Integrated Economic Censuses and data for local government authorities relating to retail sales and employment and wages and salaries in wholesale establishments are available in the bulletins *Economic Censuses 1968-69: Retail and Selected Service Establishments—Preliminary Bulletin, Western Australia* and *Economic Censuses 1968-69: Wholesale Establishments—Preliminary Bulletin, Western Australia*, respectively. In addition, bulletins relating to each of the other States and Territories and Australia as a whole are also available.

### SURVEY OF RETAIL ESTABLISHMENTS

During the period between censuses, estimates of the value of retail sales are derived from returns received from a representative sample of retailers throughout Australia. These establishments account for approximately 45 per cent of the total retail sales in Australia. From these sample returns, totals for all retail establishments in Australia are estimated by methods appropriate to a stratified sample, using data from the 1961-62 Census as a benchmark.

Annual revisions to the sample take account of the changing pattern of retail trade and ensure that new businesses entering the field are represented in the survey.

Quarterly estimates for each State and Australia as a whole in broad commodity groups are published by the Commonwealth Statistician in the bulletin *Retail Sales of Goods*. Preliminary monthly estimates of total retail sales in Australia (excluding motor vehicles, etc.), based on a sub-sample of the establishments used to provide the quarterly estimates, appear in *Retail Sales of Goods (Provisional)*.

In the following table, the estimated value of retail sales of goods in Western Australia is given by commodity groups for each of the years 1967-68 to 1971-72. The estimates shown are compiled on a basis comparable with the 1961-62 Census of Retail Establishments.

RETAIL SALES CLASSIFIED ACCORDING TO COMMODITY GROUPS (a)  
(\$ million)

Commodity group	1967-68	1968-69	1969-70	1970-71	1971-72
Groceries .....	102.6	113.8	121.6	136.3	152.1
Butchers' meat .....	43.8	48.8	51.9	56.4	59.0
Other food (b) .....	78.0	85.9	93.6	106.0	113.1
Total food and groceries .....	224.4	248.5	267.1	298.7	324.2
Beer, wine and spirits (c) .....	69.3	82.7	92.9	102.6	107.3
Clothing, drapery, soft furnishings .....	88.2	96.7	105.1	115.3	123.1
Footwear .....	15.1	16.4	17.7	18.6	18.9
Hardware, china and glassware (d) .....	14.8	16.7	17.9	19.3	21.3
Electrical goods (e) .....	35.9	40.7	43.3	46.9	52.5
Furniture, mattresses, floor coverings .....	28.0	32.1	36.1	37.7	41.0
Chemists' goods .....	29.0	34.6	38.4	41.1	44.7
Newspapers, books, stationery .....	16.2	18.6	20.6	22.7	24.1
Other goods (f) .....	57.1	64.5	69.3	75.3	79.8
Total (excluding motor vehicles, etc.) .....	578.0	651.5	708.4	778.2	836.9
New and used motor vehicles, parts, petrol, etc. (g) .....	249.9	294.3	320.3	348.0	354.3
GRAND TOTAL .....	827.9	945.8	1,028.7	1,126.2	1,191.2

(a) Figures for 1968-69 to 1970-71 have been revised since previous issue. (b) Includes fresh fruit and vegetables, confectionery, soft drinks, ice cream, cakes, pastry, cooked provisions, fish, etc. but excludes most delivered milk and some delivered bread. (c) Excludes sales made by licensed clubs. (d) Excludes basic building materials, builders' hardware and supplies such as tools of trade, paint, etc. (e) Includes radios, television and accessories, musical instruments, domestic refrigerators. (f) Includes tobacco, cigarettes, etc.; jewellery, sporting goods, etc. but excludes grain and produce, and business machines. (g) Excludes tractors, farm machinery and implements, earthmoving equipment, etc.

For purposes of comparison the following table shows, for each of the Australian States and Territories, the total value of retail sales excluding motor vehicles, etc. in each of the years 1967-68 to 1971-72.

RETAIL SALES (EXCLUDING MOTOR VEHICLES, ETC.): STATES AND TERRITORIES (a)  
(\$ million)

State or Territory	1967-68	1968-69	1969-70	1970-71	1971-72
New South Wales ....	2,866.5	3,026.9	3,268.1	3,500.8	3,747.3
Victoria ....	2,177.1	2,301.2	2,491.3	2,680.0	2,885.6
Queensland ....	1,020.6	1,069.2	1,145.6	1,240.0	1,366.3
South Australia ....	663.6	706.9	762.3	818.8	890.9
Western Australia ....	578.0	651.5	708.4	778.2	836.9
Tasmania ....	227.9	240.9	256.0	272.1	291.3
Australian Capital Territory ....	74.6	(b)	(b)	(b)	(b)
Northern Territory ....	34.4	(b)	(b)	(b)	(b)
AUSTRALIA ....	7,642.7	(c) 7,996.6	(c) 8,631.7	(c) 9,289.9	(c) 10,018.3

(a) Figures for 1968-69 to 1970-71 have been revised since previous issue. (b) Not available. (c) Excludes Australian Capital Territory and Northern Territory.

### DELIVERIES OF NEW AGRICULTURAL MACHINERY

The statistics in this section, which cover certain types of imported and Australian-made new agricultural machinery, have been derived from quarterly returns collected from principals marketing the equipment. Deliveries represent implements and machines sent to agents or dealers by the principals or by the State distributors, plus direct sales to final users by the principals or distributors. Additional information on receipts, deliveries and stocks is available in the quarterly bulletin *New Agricultural Machinery Statistics* issued by the Commonwealth Statistician, Canberra.

### DELIVERIES OF NEW AGRICULTURAL MACHINERY (a) (Number)

Type of implement or machine	1967-68	1968-69	1969-70	1970-71	1971-72
Tillage implements—					
Disc ploughs—					
Tractor-mounting type ....	39	41	(b)	19	14
Trailing type ....	1,096	969	306	59	140
Agricultural rippers (sub-soilers) ....	126	153	150	55	45
Tine cultivators and scarifiers ....	639	(b)	242	181	242
Tine harrows (number of leaves or sections) ....	12,099	8,944	3,937	2,783	4,316
Disc harrows ....	155	185	182	105	125
Rotary cultivators ....	327	351	(b)	206	308
Seeding and fertilising machinery—					
Drills and cultivating drills ....	1,184	975	336	142	(b)
Fertiliser spreaders, other than direct drop ....	660	512	273	214	358
Harvesting, haymaking and silage-making machinery—					
Pick-up balers ....	209	131	347	239	111
Forage harvesters ....	13	(b)	31	34	19
Headers (combine harvesters)—					
Self-propelled ....	376	192	103	127	122
Drawn ....	411	335	(b)	(b)	(b)
Agricultural mowers (4 ft cut and over) (c)—					
Reciprocating knife ....	192	(b)	229	191	137
Rotary mowers, slashers, and toppers ....	449	345	217	255	262
Pick-up bale loaders for baled hay ....	90	134	202	197	152
Bale elevators and stackers ....	102	104	151	157	120
Grain augers ....	691	(b)	(b)	(b)	(b)
Other agricultural machinery—					
Post-hole diggers (auger type) ....	294	(b)	212	71	79
Hammer mills (farm type) ....	(b)	135	99	(b)	160

(a) See letterpress immediately preceding table. (b) Not available for publication. (c) Excludes flail mowers and toppers.

### SALES OF NEW TRACTORS

The following table has been derived from the quarterly collection of tractor statistics from businesses which distribute the various makes of new tractors throughout Australia. The figures for sales represent the number of new tractors delivered or in transit to end-users or to manufacturers of tractor attachments. For additional information, the reader is referred to the bulletin *Receipts, Sales and Stocks of New Tractors* issued quarterly by the Commonwealth Statistician, Canberra.

### SALES OF NEW TRACTORS (a) (Number)

Horsepower and shipping weight	Agricultural (b)			Non-agricultural (b)		
	1969-70	1970-71	1971-72	1969-70	1970-71	1971-72
<b>WHEELED TRACTORS</b>						
Maximum power take-off horsepower—						
Up to and including 15 hp ....	(c)	(c)	(c)	(c)	(c)	(c)
Over 15 hp and up to 25 hp ....	(c)	(c)	(c)	(c)	(c)	(c)
" 25 hp " " 35 hp ....	(c)	18	(c)	(c)	2	(c)
" 35 hp " " 45 hp ....	(c)	175	212	(c)	72	40
" 45 hp " " 60 hp ....	135	126	(c)	347	389	246
" 60 hp " " 80 hp ....	(c)	202	358	(c)	54	44
" 80 hp " " 100 hp ....	77	64	142	(c)	43	19
" 100 hp " " ....	(c)	39	51	(c)	84	61
Total ....	(c)	635	898	(c)	650	418
<b>CRAWLER TRACTORS</b>						
Shipping weight—						
Over 3,000 lb and up to 6,000 lb ....	(c)	(c)	(c)	(c)	(c)	(c)
" 6,000 lb " " 10,000 lb ....	(c)	(c)	(c)	(c)	(c)	(c)
" 10,000 lb " " 15,000 lb ....	(c)	(c)	(c)	(c)	(c)	(c)
" 15,000 lb " " 25,000 lb ....	(c)	(c)	(c)	(c)	(c)	(c)
" 25,000 lb " " 40,000 lb ....	(c)	(c)	(c)	(c)	28	17
" 40,000 lb " " ....	(c)	(c)	(c)	(c)	(c)	18
Total ....	(c)	(c)	(c)	(c)	(c)	(c)

(a) See letterpress immediately preceding table. (b) Includes wheeled tractors which are operated from in front of the engine when the vehicle is in forward motion, and articulated tractors. (c) Not available for publication.

### WHOLESALE SALES AND STOCKS OF WINE AND BRANDY

#### WINE AND BRANDY—WHOLESALE SALES AND STOCKS (See letterpress on page 439)

Type	Wholesale sales (a)			Stocks held by wholesalers and winemakers at 30 June		
	1969-70	1970-71	1971-72	1970	1971	1972
	gallons	gallons	gallons	gallons	gallons	gallons
<b>Wine—</b>						
Sherry—						
Flor ....	33,245	34,774	27,671	28,939	33,903	19,194
Other dry ....	35,935	37,643	43,219	41,829	31,313	34,351
Medium (b) ....	157,041	170,757	174,476	49,550	55,135	80,813
Sweet ....	420,124	394,472	374,114	217,085	215,378	203,532
Dessert wines—						
Port (c) ....	155,285	165,410	172,830	152,897	157,747	156,470
Muscat (d) ....	170,965	166,958	156,754	212,387	202,746	164,364
Other (e) ....	58,869	56,376	66,145	21,549	23,141	42,392
Table wines (still, unfortified)—						
Dry white (f) ....	157,109	179,004	197,971	209,708	291,969	281,792
Dry red (g) ....	410,282	405,709	391,192	505,720	500,637	596,410
Sweet (h) ....	57,826	44,463	48,161	37,938	32,567	11,761
Rose ....	29,746	52,094	51,658	28,626	39,870	28,927
Sparkling wines (all types) (i)—						
White ....	131,906	130,745	124,730	20,427	25,891	24,795
Red and pink ....	52,433	59,531	68,413	7,973	8,221	12,878
Wine cocktails, etc. (j) ....	27,098	26,749	35,194	5,469	5,758	4,032
Vermouth ....	35,853	45,219	49,901	11,389	13,227	15,444
Total, Wine ....	1,933,717	1,969,904	1,982,429	1,551,486	1,637,503	1,677,155
	proof gallons	proof gallons	proof gallons	proof gallons	proof gallons	proof gallons
<b>Brandy</b> ....	97,626	117,470	127,618	21,918	19,607	19,852

(a) Comprises sales (both local and interstate) made by wholesalers and winemakers from stocks held in Western Australia. Excludes sales to wholesalers and winemakers for resale by them, overseas exports, and sales for ships' stores. (b) Includes medium dry and medium sweet. (c) Other than white. (d) Includes Frontignac. (e) Includes Madeira, Tokay, Marsala and White Port. (f) Includes Riesling, Hock, Moselle, Chablis and White Burgundy. (g) Includes Claret and Burgundy. (h) Includes Sauterne and Graves. (i) Includes carbonated and pearl-type wines, etc. (j) Includes aperitif wines and tonic wines.

Each year details are obtained from winemakers, wholesale merchants, and importers, of the quantities of the various types of wine and brandy held in stock at 30 June or sold to retailers and consumers during the previous twelve months. The survey thus covers all sales of wine and brandy by wholesalers and manufacturers in the State except sales made to other wholesalers or manufacturers for resale by them, or to overseas purchasers. Although the figures for sales in the previous table are free of duplication, they should not be regarded as showing actual consumption in Western Australia as they include sales to retailers and consumers in other States and, conversely, exclude purchases from other States by Western Australian retailers and consumers.

## Chapter IX—continued

## Part 3—Transport

Western Australia's main transport systems are based generally on Perth, the capital, and the principal port, at Fremantle. Subsidiary systems are centred on a number of outposts north and south of Fremantle and on some inland towns.

The railway system extends from Fremantle, Perth and Midland for hundreds of miles into the mining, agricultural, pastoral and forest areas in the southern half of the State. There is also a well-developed road system in this area, and the coastal towns in the north-west and the north are connected by road with the south and with the pastoral and mining areas of the hinterland. International flights operate through the airport at Perth, which is also the centre of a comprehensive network of airline services to towns in Western Australia and to the capital cities of other States.

In recent years important mineral developments in the north-west have led to the provision of deep-water port facilities and the construction of railways and roads connecting them with the extensive iron-ore deposits now being exploited.

The following table shows distances by road, rail, sea and air between Perth and selected towns and localities in Western Australia.

DISTANCES BETWEEN PERTH AND SELECTED TOWNS AND LOCALITIES  
IN WESTERN AUSTRALIA  
(Route miles)

Town or locality	Road	Rail	Sea (a)	Air (b)	Town or locality	Road	Rail	Air (b)
North of 26°S. latitude—					South of 26°S. latitude—			
Coastal—					Inland—continued			
Broome .....	1,372	....	1,193	1,040	Bruce Rock .....	149	193	....
Carnarvon .....	611	....	484	512	Collie .....	126	124	....
Dampier .....	1,005	....	857	800	Coolgardie .....	347	364	....
Denham (Shark Bay) .....	568	....	479	....	Donnybrook .....	133	132	....
Derby .....	1,470	....	1,358	1,130	Forrest .....	....	783	....
Exmouth .....	835	....	683	693	Harvey .....	87	86	....
Onslow .....	880	....	733	723	Hyden .....	211	344	....
Port Hedland .....	1,031	....	957	822	Kalgoorlie .....	371	407	333
Roebourne .....	1,020	....	(c) 885	810	Kambalda .....	394	....	....
Wyndham .....	2,007	....	1,761	1,456	Katanning .....	175	244	....
Inland—					Koolyanobbing .....	262	284	....
Fitzroy Crossing .....	1,575	....	....	1,267	Leonora .....	516	549	385
Goldsworthy .....	1,058	....	....	880	Madura .....	780	....	....
Halls Creek .....	1,774	....	....	1,400	Manjimup .....	191	197	....
Kununurra .....	1,996	....	....	1,481	Meekatharra .....	475	608	400
Marble Bar .....	917	....	....	918	Merredin .....	162	177	....
Newman .....	736	....	....	637	Moora .....	117	108	....
Nullagine .....	846	....	....	970	Mount Barker .....	223	321	....
Tom Price .....	1,014	....	....	650	Mukinbudin .....	191	223	....
Wittenoom .....	898	....	....	692	Mullewa .....	289	339	....
South of 26°S. latitude—					Nannup .....	177	181	....
Coastal—					Narrogin .....	118	181	....
Albany .....	254	361	353	235	Newdegate .....	247	325	....
Augusta .....	188	....	....	....	Norseman .....	451	473	344
Bunbury .....	96	115	*104	....	Northam .....	61	76	....
Busselton .....	128	149	*129	....	Pinjarra .....	54	54	....
Esperance .....	460	598	560	361	Ravensthorpe .....	338	....	....
Eucla .....	893	....	....	....	Southern Cross .....	230	249	....
Fremantle .....	11	12	....	....	Wagin .....	141	212	....
Geraldton .....	312	306	215	233	Wiluna .....	587	....	490
Inland—					Wyalkatchem .....	118	148	....
Bridgetown .....	169	174	....	....	York .....	60	97	....

(a) Nautical miles from Fremantle.

(b) Shortest regular route.

(c) Distance to Point Samson.

\* Revised.

Distances by road, rail, sea and air between Perth and other capital cities in Australia are shown in the next table.

**DISTANCES BETWEEN PERTH AND OTHER CAPITAL CITIES**  
(Route miles)

Method of travel	Canberra	Sydney	Melbourne	Brisbane	Adelaide	Hobart	Darwin
Road ....	(a) 2,457	(a) 2,594	(a) 2,168	(a) 3,222	1,704	(b) 2,313	2,564
Rail ....	(c) 2,655	(d) 2,461	2,132	(d) 3,074	1,649	....	....
Sea (e) ....	....	(f) 2,157	(f) 1,700	(f) 2,664	(f) 1,378	(f) 1,829	(f) 1,848
Air ....	1,991	2,120	1,787	2,599	1,377	2,176	1,868

(a) Via Adelaide. (b) Via Melbourne and Bell Bay and excludes 250 nautical miles from Melbourne to Bell Bay. (c) Via Melbourne. (d) Via Broken Hill. (e) Distance in nautical miles. (f) From Fremantle.

### SHIPPING

Western Australia's sea-borne trade is conducted through the Port of Fremantle and a number of outports. Of these, Geraldton, Bunbury, Busselton (see reference on page 444), Albany and Esperance are situated in the more highly-developed south-western and southern part of the State. The less closely-settled areas of the north-west and the north are served by ports and other landing points at Useless Loop (Shark Bay), Carnarvon, Cape Cuvier, Exmouth, Onslow, Barrow Island, Dampier, Cape Lambert, Point Samson, Port Walcott, Port Hedland, Broome, Derby, Yampi and Wyndham.

The following table shows the number of entrances and the net tonnage of vessels entering each port, and the tonnage of cargo discharged at and shipped from each port, during the years 1969-70 and 1970-71. The figures exclude particulars of naval vessels; yachts and other craft used for pleasure; foreign fishing vessels that neither load nor discharge cargo; fishing vessels registered in Australia; vessels engaged in geographic, seismic or oceanographic surveys; offshore oil-drilling rigs and vessels servicing them; and vessels of 200 registered net tons and under.

#### ENTRANCES OF VESSELS AND CARGO HANDLED AT PORTS

Port	Entrances of vessels				Cargo handled			
	1969-70		1970-71		1969-70		1970-71	
	Number	Net tonnage of vessels	Number	Net tonnage of vessels	Discharged	Shipped	Discharged	Shipped
		'000		'000	'000 tons	'000 tons	'000 tons	'000 tons
Port of Fremantle ....	1,414	10,112	1,469	10,845	6,060	4,819	6,509	6,606
Other ports—								
Albany ....	161	905	168	967	256	245	217	616
Barrow Island (a) ....	87	843	62	960	8	1,879	1	2,100
Broome ....	129	324	116	300	24	13	48	13
Bunbury ....	145	779	156	807	248	762	274	881
Busselton (b) ....	2	3	1	1	....	3	....	1
Carnarvon (c) ....	58	310	101	779	22	659	32	1,822
Dampier ....	373	5,032	475	6,918	175	14,204	356	19,005
Derby ....	82	160	72	139	36	3	34	6
Esperance ....	70	392	94	531	161	315	201	598
Exmouth ....	18	75	15	56	29	(d)	9	(d)
Geraldton ....	104	702	125	776	171	1,088	166	1,404
Onslow ....	35	63	27	52	1	1	4	(d)
Port Hedland ....	499	5,045	592	8,155	248	14,743	258	22,756
Port Walcott (e) ....	44	71	75	132	13	1	55	3
Wyndham ....	102	300	91	281	54	21	47	15
Yampi ....	160	1,211	172	1,457	30	2,646	52	3,458
Total ....	2,069	16,216	2,342	22,311	1,477	36,581	1,756	52,677
All ports ....	3,483	26,328	3,811	33,156	7,536	41,401	8,265	59,283

(a) Buoyed sea terminal. (b) See page 444. (c) Includes Cape Cuvier and Useless Loop. (d) Less than 500 tons.  
e) Includes Cape Lambert and Point Samson.

The net tonnage of a vessel, expressed in tons of 100 cubic feet, represents the volume of enclosed space that can be used for cargo and passengers. Most cargoes are recorded in terms of the ton weight of 2,240 lb but some cargo, consisting mainly of bulky commodities, is recorded on the basis of the ton measurement, a unit equivalent to forty cubic

feet of space. Statistics are compiled accordingly in terms of 'tons weight' or 'tons measurement'. In order to provide a ready comparison, as in the previous table, of the volume of cargo handled at the several ports or in different years, the amounts recorded in the two categories have been aggregated. In the following table, details of cargo handled at each port during 1970-71 are presented separately on the basis of 'tons weight' and 'tons measurement'.

**TONNAGE OF OVERSEAS, INTERSTATE AND INTRASTATE CARGO: 1970-71**  
(Tons)

Port	Overseas		Interstate		Intrastate		Total	
	Weight	Measurement	Weight	Measurement	Weight	Measurement	Weight	Measurement
<b>DISCHARGED</b>								
Port of Fremantle	3,930,570	311,344	1,340,645	10,164	906,566	10,086	6,177,781	331,594
Other ports—								
Albany	147,406	34	565	...	68,959	...	216,930	34
Barrow Island (a)	169	...	...	...	372	542	541	542
Broome	6,871	2,033	678	290	30,258	8,108	37,807	10,431
Bunbury	176,123	...	...	...	98,165	...	274,288	...
Busselton (b)	...	...	...	...	...	...	...	...
Carnarvon (c)	7,960	...	2,158	...	22,334	...	32,452	...
Dampier	273,532	536	10,573	...	65,100	6,250	349,205	6,786
Derby	10,242	...	3,251	47	9,943	10,631	23,436	10,678
Esperance	150,719	...	357	...	50,423	...	201,499	...
Exmouth	1,095	...	...	...	7,604	...	8,699	...
Geraldton	59,577	10	5,020	...	101,302	...	165,899	10
Onslow	...	...	...	...	1,135	3,312	1,135	3,312
Port Hedland	41,912	15,301	16,614	5,623	156,065	22,599	214,591	43,523
Port Walcott (d)	27,887	...	...	...	23,811	3,732	51,698	3,732
Wyndham	16,332	...	2,555	...	25,661	2,750	44,548	2,750
Yampi	564	...	22,653	...	26,102	2,188	49,319	2,188
Total	920,389	17,914	64,424	5,960	687,234	60,112	1,672,047	83,986
All ports	4,850,959	329,258	1,405,069	16,124	1,593,800	70,198	7,849,828	415,580
<b>SHIPPED</b>								
Port of Fremantle	4,113,708	177,820	1,621,054	16,619	601,086	75,957	6,335,848	270,396
Other ports—								
Albany	615,858	...	...	...	48	...	615,906	...
Barrow Island (a)	59,000	...	1,219,451	...	820,338	812	2,098,789	812
Broome	6,926	12	396	125	200	5,161	7,522	5,298
Bunbury	757,410	35,444	56,702	...	31,471	...	845,583	35,444
Busselton (b)	327	246	...	...	...	...	327	246
Carnarvon (c)	1,818,568	...	...	...	3,497	...	1,822,065	...
Dampier	18,961,368	...	43,074	30	127	384	19,004,569	414
Derby	...	4,042	2	156	267	1,822	269	6,020
Esperance	587,341	8,493	...	...	1,678	...	589,019	8,493
Exmouth	72	24	...	...	...	...	72	24
Geraldton	1,403,504	...	...	...	...	...	1,403,504	...
Onslow	...	...	...	...	130	159	130	159
Port Hedland	22,184,469	342	565,781	149	3,425	2,022	22,753,675	2,513
Port Walcott (d)	...	...	14	13	2,463	386	2,477	399
Wyndham	7,739	1,014	456	69	5,201	973	13,396	2,056
Yampi	2,066,426	...	1,309,223	...	81,069	783	3,456,718	783
Total	48,469,008	49,617	3,195,099	542	949,914	12,502	52,674,021	62,661
All ports	52,582,716	227,437	4,816,153	17,161	1,551,000	88,459	58,949,869	333,057

(a) Buoyed sea terminal.  
Lambert and Point Samson.

(b) See page 444.

(c) Includes Cape Cuvier and Useless Loop.

(d) Includes Cape

Apart from general cargo, overseas and interstate consignments discharged were principally petroleum products, rock phosphate, iron and steel products, coke and sulphur. Outward cargoes, with the exception of refined petroleum products and steel products shipped from the Port of Fremantle (Outer Harbour), consisted largely of primary products, including minerals. Cargo shipped from Esperance comprised mainly cereal grains, nickel ore and salt and from Albany cereal grains, wool and apples. From Bunbury the principal cargoes shipped were mineral sands, cereal grains and timber. Exports from Busselton consisted almost entirely of timber. Iron ore and cereal grains were the main

items shipped from Geraldton. In the northern part of the State, Dampier, Port Hedland and Yampi are the major ports for the shipment of iron ore. The buoyed sea terminal at Barrow Island provides facilities for the loading of crude petroleum. From other ports in the area, cargo shipped consisted mainly of cotton, cotton seed, meat, and minerals, including salt and gypsum.

The Western Australian Coastal Shipping Commission was established in 1965 to carry on the services formerly maintained by the State Shipping Service. The Commission's ships operate along the north-west and northern coasts, calling regularly at ports between Fremantle and Darwin (Northern Territory). Besides general cargo, the freight discharged at north-west and northern ports consists mainly of refined petroleum products, building and construction materials, refrigerated cargo, vehicles and livestock. Cargoes carried south to Fremantle are mainly primary products, such as cotton, meat, livestock, wool and minerals.

## SHIPPING—ENTRANCES AND CLEARANCES: 1970-71

Port			From or to overseas countries			From or to other Australian States		From or to other Western Australian ports	Total	
			Direct	Via other Australian States	Via other Western Australian ports	Direct	Via other Western Australian ports		Number	Net tonnage of vessels ('000)
ENTRANCES										
Port of Fremantle	....	....	617	308	250	161	34	99	1,469	10,845
Other ports—										
Albany	....	....	56	53	51	....	....	8	168	967
Barrow Island (a)	....	....	3	7	19	18	....	15	62	960
Broome	....	....	11	5	11	8	5	76	116	300
Bunbury	....	....	32	25	75	8	....	16	156	807
Busselton (b)	....	....	....	....	1	....	....	....	1	1
Carnarvon (c)	....	....	76	3	22	....	....	....	101	779
Dampier	....	....	359	10	23	1	1	81	475	6,918
Derby	....	....	7	1	3	6	1	54	72	139
Esperance	....	....	44	13	30	2	....	5	94	531
Exmouth	....	....	1	1	6	....	....	7	15	56
Geraldton	....	....	87	7	25	....	1	5	125	776
Onslow	....	....	....	....	....	....	....	27	27	52
Port Hedland	....	....	431	7	31	3	14	106	592	8,155
Port Walcott (d)	....	....	9	....	9	....	....	57	75	132
Wyndham	....	....	10	11	5	....	....	60	91	281
Yampi	....	....	64	....	....	32	3	73	172	1,457
Total	....	....	1,190	143	311	83	25	590	2,342	22,311
All ports	....	....	1,807	451	561	244	59	689	3,811	33,156
CLEARANCES										
Port of Fremantle	....	....	731	301	148	138	46	111	1,475	10,898
Other ports—										
Albany	....	....	79	17	65	3	....	5	169	975
Barrow Island (a)	....	....	2	5	21	17	....	16	61	941
Broome	....	....	6	....	21	1	15	73	116	300
Bunbury	....	....	30	18	82	9	....	15	154	795
Busselton (b)	....	....	....	1	....	....	....	....	1	1
Carnarvon (c)	....	....	86	1	15	....	....	....	102	789
Dampier	....	....	343	13	33	....	2	80	471	6,901
Derby	....	....	2	....	9	....	20	41	72	139
Esperance	....	....	48	12	27	3	....	5	95	538
Exmouth	....	....	1	....	7	....	....	7	15	56
Geraldton	....	....	52	1	68	....	....	6	127	794
Onslow	....	....	....	....	....	....	....	27	27	52
Port Hedland	....	....	424	4	31	10	21	100	590	8,048
Port Walcott (d)	....	....	1	3	13	....	7	49	73	129
Wyndham	....	....	4	3	18	27	5	32	89	285
Yampi	....	....	48	9	3	46	2	65	173	1,498
Total	....	....	1,126	87	413	116	72	521	2,335	22,241
All ports	....	....	1,857	388	561	254	118	632	3,810	33,139

(a) Buoyed sea terminal.  
Lambert and Point Samson.

(b) See page 444.

(c) Includes Cape Cuvier and Useless Loop.

(d) Includes Cape

In the previous table vessels entered at and cleared from each Western Australian port during 1970-71 are classified according to the direction of the voyage on which each vessel was engaged. 'Direction' is determined by reference to the port of commencement of the inward voyage or the port of termination of the outward voyage.

### Administration of Ports

The State Government, through the Harbour and Light Department, controls the ports at Broome, Carnarvon, Derby, Onslow, Port Walcott (Cape Lambert and Point Samson) and Wyndham. The ports at Albany, Bunbury, Esperance, Fremantle, Geraldton and Port Hedland are controlled by separately-constituted authorities established by Act of Parliament. Private operators control the ports (or landing points) at Barrow Island, Cape Cuvier, Dampier, Exmouth, Useless Loop and Yampi.

In terms of a proclamation made under the provisions of the *Shipping and Pilotage Act, 1967*, Busselton ceased to be a port for the purposes of the Act with effect from 1 September 1972.

### THE PORT OF ESPERANCE <sup>(1)</sup>

The Port of Esperance (latitude 33° 52' S., longitude 121° 54' E.) is situated in Esperance Bay on the south coast of Western Australia. The seaward boundary of the port extends in a ten-mile radius from Bandy Creek, which is approximately four miles north-east of the main harbour area. Protection for shipping and shore works within the harbour was improved in 1963 on completion of a breakwater, 3,200 feet in length, extending in a north-north-easterly direction from Dempster Head.

The approach channel to the land-backed berths is 800 feet wide and dredged to a depth of 36 feet 6 inches but there would appear to be no limitations in dredging to provide for deeper water as and when required. The deepest permissible loading draft at present is thirty-four feet.

Statistics of activity at the port during the years 1969-70 and 1970-71 are shown in the tables on pages 441-3.

**Administration.** The Port of Esperance is administered by the Esperance Port Authority which was established under the provisions of the *Esperance Port Authority Act, 1968*. The Authority consists of five members, including a chairman, appointed by the Governor. Each member holds office for a period of three years but is eligible for reappointment. The chief executive officer, who is the Managing Secretary, is also appointed by the Governor on the nomination of the Port Authority.

The Authority has the exclusive control of the Port of Esperance and is charged with the maintenance and preservation of all property vested in it under the Act. In addition, it is the responsibility of the Authority to ensure that adequate provision is made for future facilities to meet the demands of a developing port. All major capital works are undertaken by the Public Works Department.

**Finance.** The revenue of the Esperance Port Authority is derived from wharfage levies, berthing dues, harbour improvement dues levied on cargo shipped through the port, charges for the handling of cargo by the Authority and charges for the use of plant and services, such as weighbridge, power and water. Expenditure includes salaries, wages, cargo handling expenses and other costs incurred in the upkeep and maintenance of the assets of the Authority. Allocations from the General Loan Fund (see page 279) and private borrowing against inscribed stock provide the funds necessary for the completion of capital works.

The following table gives details of the revenue and expenditure of the Authority for the four years ended 30 June 1972.

<sup>(1)</sup> See *Appendix* for details of previous articles on ports in Western Australia. An aerial photograph of the Port of Esperance appears between pages 224 and 225.

ESPERANCE PORT AUTHORITY—REVENUE AND EXPENDITURE  
(\$)

Particulars	1968-69	1969-70	1970-71	1971-72
<b>Revenue—</b>				
Wharfage, handling and haulage rates .....	76,622	300,578	404,700	294,369
Tonnage rates, mooring services, etc. ....	13,397	61,018	94,805	56,372
Miscellaneous services .....	6,648	56,340	70,882	56,577
<b>Total revenue .....</b>	<b>96,667</b>	<b>417,936</b>	<b>570,387</b>	<b>407,318</b>
<b>Expenditure—</b>				
Working expenses—				
Cargo handling costs, wages, etc. ....	11,993	31,554	35,729	34,619
Maintenance on jetties, wharves, buildings, plant and equip- ment .....	156	30,193	163,554	112,850
Electricity .....	1,954	31,858	43,885	35,085
Insurance .....	.....	3,198	4,264	5,154
Tug subsidy .....	.....	.....	.....	2,930
Administration .....	2,826	11,428	26,034	26,242
Other expenses .....	.....	7,360	7,571	5,638
<b>Total .....</b>	<b>16,929</b>	<b>115,591</b>	<b>281,037</b>	<b>222,518</b>
Other charges—				
Depreciation .....	.....	41,441	43,867	56,028
Interest on loan capital .....	44,955	158,289	198,248	229,110
Interest on inscribed stock .....	.....	22,526	50,389	89,610
<b>Total .....</b>	<b>44,955</b>	<b>222,256</b>	<b>292,504</b>	<b>374,748</b>
<b>Total expenditure .....</b>	<b>61,884</b>	<b>337,847</b>	<b>573,541</b>	<b>597,266</b>
Net surplus .....	34,783	80,089	.....	.....
Net deficiency .....	.....	.....	3,154	189,948

**Berthing Facilities and Cargo Handling.** The port has two land-backed berths of concrete and steel construction which are designed to allow for the efficient handling of bulk or general cargo. No. 1 berth was completed in 1965 and No. 2 early in 1972. Together they provide a continuous structure, 1,500 feet long, dredged to a depth alongside of 36 feet 6 inches, with a land area backing of approximately 116 acres. In addition, a timber jetty situated approximately one mile north of the harbour is maintained for the discharge of petroleum products. Built in 1935, it is 2,865 feet long with a depth alongside of 31 feet 6 inches.

Development of the Esperance Plains as a vast farming region has resulted in tonnages of the principal cargo items discharged at the port (petroleum products, phosphate rock and sulphur) increasing substantially over the past decade. Mineral development in the Eastern Goldfields has also been reflected in the growth of port trade with nickel concentrates from Kambalda and salt from Lake Lefroy featuring prominently in statistics of cargo shipped.

Situated on No. 1 berth are two privately owned ship loaders. One, with a loading capacity rate of 850 tons per hour, has been installed to handle salt and bulk grains, the latter being stored in a 5 million bushel capacity terminal located at the rear of the port area. The other, a conveyor with a rated capacity of 200 tons per hour, is used for the handling of nickel concentrates.

The following table gives details of the principal items of cargo shipped overseas, interstate and intrastate from Esperance during the five years 1967-68 to 1971-72.

PORT OF ESPERANCE—PRINCIPAL ITEMS OF CARGO SHIPPED (a)  
(Tons)

Cargo	1967-68	1968-69	1969-70	1970-71	1971-72
Barley .....	18,821	16,754	35,282	74,579	45,304
Nickel concentrates .....	29,968	53,818	147,243	192,791	178,305
Salt .....	4,134	.....	35,099	158,037	69,784
Sheep .....	.....	.....	.....	(b) 1,643	(b) 5,162
Wheat .....	62,320	95,783	90,528	149,677	58,686
Other .....	11,863	6,364	8,056	12,212	4,334
<b>Total .....</b>	<b>127,106</b>	<b>172,719</b>	<b>316,208</b>	<b>588,939</b>	<b>361,575</b>

(a) Overseas, interstate and intrastate.

(b) Calculated at the rate of 15 sheep per ton.

**Harbour Maintenance and Development.** Although the harbour floor is sandy and has proved to be stable, the accretion of sand round the head of the breakwater at present necessitates limited maintenance dredging. Future development of the harbour will be based on the results of a model study undertaken by the Harbours and Rivers Branch of the Public Works Department at the request of the Authority to provide a basis for long-term planning. It is hoped that spur groynes, once proven in the model study, will eliminate the need for future dredging.

## RAILWAYS

Railways open for general and passenger traffic in the southern part of the State are operated by the Western Australian Government Railways Commission. The system is linked with railways of other States by the Commonwealth Government Trans-Australian Railway between Kalgoorlie in Western Australia and Port Pirie in South Australia. There are, in addition, private railways for the haulage of iron ore in the northern part of the State and timber in the south-west.

### Origin and Development

The first railway in the Colony, built in 1871 from Busselton into the nearby forest, was a private line constructed for the transport of timber. By the end of 1900, the Colony had a railway system for general and passenger traffic which comprised 1,355 miles of government line and 277 miles of privately-owned line. The State Government system reached a maximum of 4,381 miles in 1940 but this figure has been subsequently reduced, particularly during the 1960s, by the closure of certain non-paying lines. A summary of the development of railways in Western Australia appeared in the *Western Australian Year Book*, No. 7—1968 and earlier issues.

At 30 June 1972 there were 4,254 miles of railway open for general and passenger traffic in Western Australia. Of this total, 3,800 miles were owned by the State Government and operated by the Western Australian Government Railways Commission, and 454 miles were owned and operated by the Commonwealth Government. The Western Australian Government Railways Commission also operated thirteen miles of privately-owned line connecting iron-ore deposits at Koolanooka with its railway to Geraldton. Other private railways used for the transport of iron ore were those between Newman and Port Hedland (265 miles), Goldsworthy and Port Hedland (71 miles), and Tom Price and Dampier (182 miles). In addition, there were eighteen miles of private railway operated by timber millers.

Government and private railways in Western Australia are shown on the map of the State appearing at the back of the Year Book.

### The Western Australian Government Railways Commission

The *Government Railways Act, 1904-1972* constitutes a Commission, in the person of the Commissioner of Railways, who is responsible, subject to the Minister, for the administration of the Act.

Financial procedure for the Western Australian Government Railways Commission is basically the same as for other Departments. Receipts are paid into the Consolidated Revenue Fund, and finance for its operations and the servicing of debt is provided from the Fund by statutory appropriations. Loan moneys, for the construction and improvement of permanent way, for the purchase of traction units and rolling stock and for other capital outlay, are advanced by the Parliament from the General Loan Fund. The loan liability of the Western Australian Government Railways Commission to the Treasury was \$164,831,426 at 30 June 1972, the net increase during 1971-72 being \$18,671.

In addition to its railway services, the Commission operates an extensive system of road services for the carriage of passengers, mail and freight. A map showing the routes operated by the road services appeared in the 1967 issue of the Year Book.

**Summary of Operations.** The following table gives particulars of the financial transactions, railway operations and road service operations of the Western Australian Government Railways for each of the years 1967-68 to 1971-72.

## WESTERN AUSTRALIAN GOVERNMENT RAILWAYS

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
<b>FINANCE (a)</b>					
Capital investment at 30 June (b) ....	\$'000 145,580	\$'000 155,697	\$'000 161,786	\$'000 164,813	\$'000 164,831
Operating revenues—					
Passenger fares ....	3,367	3,471	4,104	4,238	4,157
Parcels and mails ....	1,530	1,699	1,752	1,725	1,621
Paying goods and livestock ....	46,098	43,375	48,580	52,761	55,597
Miscellaneous ....	1,778	2,013	2,803	3,193	3,471
Total operating revenues ....	52,773	50,558	57,240	61,917	64,846
Operating expenses ....	42,623	44,503	48,550	53,205	57,112
Excess of operating revenues over expenses ....	10,149	6,055	8,689	8,713	7,735
Depreciation ....	6,140	6,574	7,632	7,721	7,974
Interest charges ....	8,810	9,533	10,631	11,697	11,909
Total deficit ....	4,800	10,052	9,573	10,705	12,148

## RAILWAY OPERATIONS

Route mileage at 30 June—					
3 ft 6 in gauge (c) ....	(c) 3,502	(c) 3,381	(c) 3,379	(c) 3,388	(c) 3,350
4 ft 8½ in gauge ....	249	377	375	375	375
Dual gauge ....	64	68	74	74	75
Employees at 30 June ....	11,226	10,940	10,613	10,144	10,167
	'000	'000	'000	'000	'000
Number of—					
Train miles run (d) ....	9,226	8,680	8,633	8,771	8,501
Passenger-journeys—					
Suburban ....	9,628	9,832	10,227	10,557	10,800
Country ....	342	338	352	362	350
Total ....	9,970	10,170	10,580	10,919	11,150
Tons of freight—					
Paying goods and livestock ....	8,910	8,934	10,665	13,244	13,648
Departmental (e) ....	491	517	611	529	455
Total ....	9,402	9,452	11,277	13,774	14,104
Ton mileage—					
Paying goods and livestock ....	1,571,749	1,525,835	1,749,116	2,077,965	2,108,501
Departmental ....	40,534	37,327	45,178	40,353	30,960
Total ....	1,612,282	1,563,162	1,794,293	2,118,317	2,139,460

## ROAD SERVICE OPERATIONS

Route mileage at 30 June—					
Omnibus ....	3,958	4,045	4,119	4,044	4,095
Freight vehicle ....	1,807	(f)	2,004	2,004	2,015
Employees at 30 June ....	256	254	262	269	269
	'000	'000	'000	'000	'000
Number of—					
Miles run—					
Omnibus ....	1,875	1,958	1,930	1,867	1,772
Freight vehicle ....	895	1,011	978	983	1,578
Total ....	2,770	2,969	2,908	2,849	3,350
Passenger-journeys ....	228	234	222	207	180

(a) Includes financial transactions in relation to road services.

(b) Including Stores Funds.

(c) Excludes route

mileage of 3 ft 6 in gauge line which parallels the 4 ft 8½ in gauge line.

(d) Revenue and non-revenue train miles.

(e) De-

partmental freight comprises mainly coal, oil, water, ballast, timber and rails.

(f) Not available.

**Goods and Livestock Carried.** The following table shows the tonnage of paying goods and livestock carried during each year in the period from 1967-68 to 1971-72. The classification used in the table is that adopted by the Railways Commission in dissecting its freight transport statistics. The actual number of livestock carried in each of the five years is given in the second part of the table.

**WESTERN AUSTRALIAN GOVERNMENT RAILWAYS  
TONNAGE OF PAYING GOODS AND LIVESTOCK CARRIED**

Freight classification	1967-68	1968-69	1969-70	1970-71	1971-72
Wheat ....	2,276,520	1,512,215	2,280,523	2,424,220	2,537,805
Other grain ....	212,706	265,970	140,786	580,809	830,646
Grain products ....	46,057	45,254	43,525	45,299	37,945
Chaff ....	6,842	6,863	.....	.....	.....
Fertilisers ....	703,806	666,714	559,862	413,765	415,839
Fruit and vegetables ....	95,672	103,629	102,113	88,106	47,855
Wool ....	116,824	141,964	126,340	128,908	143,903
Timber ....	392,676	332,900	333,442	291,584	276,812
Firewood ....	276	147	.....	.....	.....
Coal, etc. ....	359,394	229,242	135,129	186,201	191,343
Ores and minerals ....	3,477,873	4,352,432	5,435,810	7,471,275	7,545,603
Oil in tank wagons ....	248,163	256,116	266,091	315,711	303,346
Other classifications ....	885,828	933,330	1,157,361	1,228,875	1,237,453
Livestock (‡) ....	87,827	87,701	84,410	69,686	79,925
<b>Total</b> ....	<b>8,910,464</b>	<b>8,934,477</b>	<b>10,665,392</b>	<b>13,244,439</b>	<b>13,648,475</b>
( <b>‡</b> ) Number of livestock carried—					
Sheep ....	1,460,691	1,508,721	1,552,640	1,117,620	1,294,723
Cattle ....	58,391	57,082	46,085	50,562	58,259
Pigs ....	119,895	83,588	90,696	69,251	73,304
Horses ....	576	582	541	460	588

**Railways Rolling Stock.** The following table shows the numbers of the various categories of rolling stock of the Western Australian Government Railways in service at 30 June for the years 1968 to 1972.

**WESTERN AUSTRALIAN GOVERNMENT RAILWAYS  
ROLLING STOCK IN SERVICE**

Category	At 30 June—									
	1968	1969	1970	1971	1972	1968	1969	1970	1971	1972
	3 ft 6 in gauge					4 ft 8½ in gauge				
<b>Locomotives—</b>										
Steam ....	215	204	154	48	48	.....	.....	.....	.....	.....
Diesel—										
Electric ....	105	105	121	136	140	28	42	42	42	42
Mechanical ....	4	4	4	4	4	.....	.....	.....	.....	.....
Hydraulic ....	11	11	11	11	13	.....	.....	.....	.....	.....
<b>Total</b> ....	<b>335</b>	<b>324</b>	<b>290</b>	<b>199</b>	<b>205</b>	<b>28</b>	<b>42</b>	<b>42</b>	<b>42</b>	<b>42</b>
<b>Coaching stock—</b>										
Passenger cars ....	75	63	57	37	35	.....	.....	.....	.....	.....
Sleeping cars ....	59	57	52	51	51	.....	.....	.....	.....	.....
Lounge, buffet, and dining cars ....	11	11	11	11	11	.....	.....	.....	.....	.....
Rail motor cars ....	47	47	46	45	45	.....	.....	.....	.....	5
Rail motor trailers ....	34	36	36	36	36	.....	.....	.....	.....	3
Service vehicles (a) ....	12	11	12	12	12	.....	.....	.....	.....	.....
<b>Total</b> ....	<b>238</b>	<b>225</b>	<b>214</b>	<b>192</b>	<b>190</b>	<b>.....</b>	<b>.....</b>	<b>.....</b>	<b>.....</b>	<b>8</b>
<b>Goods stock (b) ....</b>	<b>11,713</b>	<b>11,447</b>	<b>11,259</b>	<b>11,220</b>	<b>10,998</b>	<b>494</b>	<b>654</b>	<b>840</b>	<b>1,129</b>	<b>1,145</b>
<b>Service stock (c) ....</b>	<b>873</b>	<b>868</b>	<b>875</b>	<b>813</b>	<b>764</b>	<b>108</b>	<b>108</b>	<b>109</b>	<b>98</b>	<b>95</b>

(a) Consists of inspection, track recorder, ministerial, vice-regal and special cars. (b) Includes brake vans, goods wagons, livestock wagons, mineral wagons, etc. (c) Includes ballast wagons, workmen's vans, ash disposal wagons, water tanks, etc. Excludes service vehicles shown under *Coaching stock*; see note (a).

### Iron-ore Railways

In recent years the exploitation of extensive inland deposits of iron ore in Western Australia has necessitated the construction of a number of railways for the transport of ore from the mines to the coast. Conditions applying to the construction and operation of these railways are incorporated in agreements made between the State Government and mining companies and ratified by Act of Parliament.

The following summary relates to railways in use for the transport of iron ore at 31 December 1972. The quantity of ore carried on these railways was 15.5 million tons in 1968, 26.0 million tons in 1969, 36.6 million tons in 1970, 44.7 million tons in 1971 and 49.8 million tons in 1972. At 30 June 1972 there were sixty-eight locomotives and 3,267 ore wagons in service.

#### RAILWAYS USED FOR TRANSPORT OF IRON ORE

Railway	Enabling Act	Length (route miles)	Gauge	Date operative (a)
Westmine-Tilley (b) ....	No. 104 of 1964 (c)	13	3 ft 6 in	1966—31 January
Goldsworthy-Port Hedland (d) ....	No. 97 of 1964 (e)	71	4 ft 8½ in	1966—23 May
Tom Price-Dampier (d) ....	No. 24 of 1963 (f)	182	4 ft 8½ in	1966—1 July
Koolyanobbing-Kwinana (g) ....	No. 27 of 1961 (h)	304	4 ft 8½ in	1967—10 April
Newman-Port Hedland (d) ....	No. 75 of 1964 (i)	265	4 ft 8½ in	1969—18 January

(a) Date on which first load of iron ore was dispatched from mine. (b) Privately owned, but operated by the Western Australian Government Railways Commission. Connected at Tilley to the Western Australian Government Railways line to the Port of Geraldton. (c) *Iron Ore (Talling Peak) Agreement Act, 1964*. (d) Privately owned and operated. (e) *Iron Ore (Mount Goldsworthy) Agreement Act, 1964*. (f) *Iron Ore (Hamersley Range) Agreement Act, 1963*. (g) Part of the Western Australian Government Railways system; open for general and passenger traffic. (h) *Railways (Standard Gauge) Construction Act, 1961*. See also letterpress on page 451. (i) *Iron Ore (Mount Newman) Agreement Act, 1964*.

### Commonwealth Government Railways

The Commonwealth Government Railways comprise four separate systems. These are the Trans-Australian Railway, operating partly in Western Australia and partly in South Australia; the Central Australia Railway, partly in South Australia and partly in the Northern Territory; the North Australia Railway, wholly in the Northern Territory; and the Australian Capital Territory Railway.

Construction of the Trans-Australian Railway was begun at Port Augusta, the original South Australian terminus of the line, in 1912 and work was completed in 1917. Of the total length of 1,108 miles between Kalgoorlie and Port Pirie (South Australia), 454 miles are in Western Australia. Although statistical details of activities on each of the four systems are available, it is not possible to give separate particulars of the operations in Western Australia of the Trans-Australian Railway. Some statistics relating to the Commonwealth Government Railways are shown in the next table.

### Operations of Government Railways in Australia

The following table gives a summary of operations during the year ended 30 June 1971 on each of the railway systems owned by the State and Commonwealth Governments.

#### GOVERNMENT RAILWAYS IN AUSTRALIA—SUMMARY OF OPERATIONS, 1970-71

Railway system of—	Route mileage at 30 June	Revenue train miles run	Passenger-journeys	Goods and livestock carried	Gross earnings	Average number of employees (a)
New South Wales	6,061	'000 39,540	'000 254,787	'000 tons 33,204	\$'000 251,899	43,505
Victoria	4,166	20,831	142,211	12,490	108,646	(b) 26,180
Queensland	5,797	17,368	29,536	15,418	110,165	22,568
South Australia	2,413	6,344	13,946	5,990	34,399	8,944
Western Australia	3,837	7,944	10,919	13,244	60,671	(b) 10,303
Tasmania	500	1,096	871	1,201	5,805	2,153
Commonwealth—						
Trans-Australian	1,108	2,618	144	1,091	18,704	2,158
Central Australia	818	1,041	27	1,870	7,411	1,296
North Australia	317	334	1	1,131	2,584	297
Australian Capital Territory	5	17	87	290	281	48
Australia	25,022	97,133	452,530	85,929	600,564	117,452

(a) Excluding construction staff except for Victoria and Western Australia where construction staff are included. (b) See footnote (a).

It will be noted that particulars of route miles shown for the New South Wales and Victorian systems differ from the details given for those States in the table in the next section *Railway Gauges*, which is compiled according to the State or Territory in which the several lengths of line are situated. The Victorian system includes lines extending into New South Wales, the aggregate length of such lines in New South Wales being 204 miles.

### Railway Gauges

The following table shows the route mileage of government railways of each gauge in each of the Australian States and Territories at 30 June 1971. Except where otherwise indicated, the mileages shown relate to lines owned by the several State railway authorities.

GOVERNMENT RAILWAYS IN EACH STATE AND TERRITORY OF AUSTRALIA  
ROUTE MILEAGE OPEN AT 30 JUNE 1971

State or Territory	Route miles of gauge—					Total route miles
	5 ft 3 in	4 ft 8½ in	3 ft 6 in	2 ft 6 in	2 ft 0 in	
State systems in—						
New South Wales ....	(a) 204	(b) 6,090	....	....	....	6,294
Victoria ....	(c) 3,751	202	....	9	....	3,962
Queensland ....	....	69	5,698	....	30	5,797
South Australia ....	1,570	217	597	....	....	2,384
Western Australia ....	....	451	(d) 3,386	....	....	3,837
Tasmania ....	....	....	500	....	....	500
Commonwealth systems in—						
South Australia ....	....	871	428	....	....	1,299
Western Australia ....	....	454	....	....	....	454
Northern Territory ....	....	....	490	....	....	490
Australian Capital Territory ....	....	5	....	....	....	5
Total route miles ....	5,525	8,359	11,099	9	30	25,022

(a) Part of the Victorian railway system. (b) Includes 29 miles of 4 ft 8½ in line from Broken Hill to Cockburn owned and operated by the South Australian Government Railways. (c) Excludes 202 miles of 5 ft 3 in gauge line which almost parallels the 4 ft 8½ in gauge line between Melbourne and the Murray River. (d) Excludes 248 miles of 3 ft 6 in gauge line which parallels the 4 ft 8½ in gauge line. Excludes 74 miles of 4 ft 8½ in/3 ft 6 in dual gauge line which is included in the 4 ft 8½ in gauge line.

Standardisation of gauges on main trunk routes throughout Australia and on some other lines has been the subject of inquiries by the Commonwealth Government and of agreements between the Commonwealth and some States. The principle of standardisation was accepted at a Premiers' Conference in August 1945 following an investigation instituted by the Commonwealth Government in March 1944 and the submission of a favourable report in March 1945. The use of the 4 ft 8½ in gauge was recommended for adoption in a unification plan, one of the projects in which was to be the construction of a line from the Port of Fremantle through Perth to Kalgoorlie. Approval was given to the making of a survey for a route, and field work began in October 1945. The work was continued until December 1947, when it was abandoned pending agreement between the Governments of the Commonwealth and the State on the provision of finance for the unification scheme. In the years immediately following the second World War it became apparent that considerable expenditure would be necessary on the rehabilitation of the Western Australian Government Railways. The urgency and the magnitude of this undertaking were such that all the Department's available resources of money, labour and materials were absorbed in the programme and, in these circumstances, works associated with the unification plan could not be contemplated but, where possible, works connected with the restoration of the 3 ft 6 in system were so designed as to make provision for later conversion to the standard gauge.

In March 1956, a committee consisting of members of the Federal Parliament was appointed to re-examine the matter of standardisation. Among its recommendations, submitted in October 1956, was the provision of the standard gauge line between Fremantle and Kalgoorlie, but no immediate action was taken to carry out this work.

During the 1960 session, the Western Australian Parliament passed the Broken Hill Proprietary Company's Integrated Steel Works Agreement Act ratifying an agreement between the Government and the Company relating to the establishment of an integrated iron and steel industry at Kwinana on the coast south of Fremantle. The Act made the operation of the agreement contingent upon the passage of legislation by the State and Commonwealth Parliaments to provide for the financing, construction and completion before 31 December 1968 of a standard gauge railway between the works site at Kwinana and the terminus of the Trans-Australian Railway at Kalgoorlie. Accordingly the Commonwealth Parliament passed the *Railway Agreement (Western Australia) Act 1961* extending to the State financial assistance for the project. The State Parliament approved this agreement by the *Railway Standardisation Agreement Act, 1961* and gave authority for the construction of the railway by means of the *Railways (Standard Gauge) Construction Act, 1961*. Work on route surveys was begun in 1961 and the construction of earthworks commenced on 5 November 1962. Basic planning and all major surveys required for the project were completed during 1965. The 3 ft 6 in portion of the dual gauge route between Midland and Northam along the Avon River valley was commissioned for general and passenger traffic on 13 February 1966. In October of the same year, haulage of grain on the standard gauge railway commenced between Merredin and the Port of Fremantle and the first train load of iron ore from Koolyanobbing to Kwinana was hauled in April 1967. The standard gauge line from Kwinana to Kalgoorlie was linked with the Trans-Australian Railway to Port Pirie (South Australia) on 3 August 1968, enabling 'through' freight services to commence in November 1968.

In 1962, the opening of a new 4 ft 8½ in gauge railway between Melbourne (Victoria) and Albury, on the border between Victoria and New South Wales, completed the standard gauge link between Melbourne and South Brisbane (Queensland). Late in 1969 work was completed on the last stage of a standard gauge connection between Sydney (New South Wales) and Perth and Fremantle, through Broken Hill (New South Wales), Port Pirie (South Australia) and Kalgoorlie. The length of this route is 2,461 miles (Sydney to Perth). Regular services for freight began in January 1970, and for passengers in March 1970. The passenger service has been named 'The Indian-Pacific' after the oceans it links.

## ROADS AND ROAD TRAFFIC

Work connected with road construction and maintenance and associated projects in Western Australia is undertaken by the State Government, through the Main Roads Department, and by local government authorities, comprising City Councils, Town Councils and Shire Councils.

Under the provisions of the Main Roads Act, the Main Roads Department was established in 1930 to replace the Main Roads Board originally constituted as a central road authority in 1926. The Department operates under the *Main Roads Act, 1930-1972* and is administered by a Commissioner of Main Roads responsible to the Minister for Works. The Act makes provision for public roads in the categories of 'main' roads, 'controlled-access' roads and 'developmental' roads. An additional category, that of 'important secondary' roads, is used by the Department in determining its works programme.

Main roads are those which provide communication between a large producing area, either actual or potential, and its market or nearest port or railway station; between two or more such areas; between large centres of population; or between the capital city and a large producing area or a large centre of population. Controlled-access roads are those which do not permit direct access from abutting property and may be entered or departed from only at certain selected road connections located at points which are considered to serve best the traffic for which the controlled-access road was designed. Developmental roads are those which serve to develop an area or to increase its development. Important secondary roads are those which, though originally classified as developmental, have come to be used consistently by through traffic and therefore warrant a

special allocation of funds by the Main Roads Department. The Act provides that, on the recommendation of the Commissioner, any road may be proclaimed a main road and any main road may cease to be a main road.

The construction and maintenance of main roads and controlled-access roads are the responsibility of the Main Roads Department. The Department also makes substantial financial provision for the construction and maintenance of important secondary roads and for the construction of developmental roads. The construction and maintenance of strategic roads and roads of access to Commonwealth property is undertaken by the Department for the Commonwealth Government.

Within its own district, each local government authority is responsible for the provision and upkeep of roads other than those provided by the Main Roads Department. In addition, the local authority is required by the Main Roads Act to maintain any developmental road situated in its district.

The following table shows the length of public roads open for vehicular traffic at 30 June 1972, classified according to Statistical Division (see map of Western Australia following index). Included in the total are 7,651 miles of main roads, 19 miles of controlled access roads and 5,434 miles of important secondary roads.

ROADS OPEN FOR VEHICULAR TRAFFIC AT 30 JUNE 1972 (a)  
MILEAGE CLASSIFIED ACCORDING TO STATISTICAL DIVISION  
(Source: Main Roads Department)

Statistical Division	Formed roads				Unformed roads (c)	Grand total
	Sealed	Gravel surface	Formed only (b)	Total		
Perth Statistical Division	3,762	496	93	4,351	1,639	5,991
Other Divisions—						
South-West	2,522	2,307	1,583	6,413	12,641	19,054
Southern Agricultural	2,012	2,845	4,386	9,243	1,895	11,138
Central Agricultural	3,689	5,095	6,405	15,189	2,872	18,061
Northern Agricultural	2,315	3,769	3,416	9,501	2,337	11,838
Eastern Goldfields	1,687	2,163	3,248	7,098	5,299	12,398
Central	345	388	3,538	4,271	3,437	7,708
North-West and Pilbara	735	591	2,980	4,306	4,369	8,675
Kimberley	579	695	1,119	2,394	2,368	4,762
Total	13,884	17,854	26,676	58,415	35,218	93,633
WESTERN AUSTRALIA	17,646	18,350	26,769	62,766	36,857	99,624

(a) Figures for Perth Statistical Division relate to survey dates between December 1969 and March 1971. (b) Comprises roads, mainly of natural surfaces, formed but not metalled or otherwise prepared. (c) Roads, unprepared except for certain clearing, used for vehicular traffic.

### Vehicle Registration, Licences and Traffic Control

The *Traffic Act, 1919-1972* provides for the registration of vehicles, the issue of licences and the regulation of traffic throughout the State, and prescribes the fees payable in respect of the several types of licences required.

In Western Australia there is no single authority responsible for the licensing of vehicles. The Traffic Branch of the Police Department licenses vehicles in the Metropolitan Traffic Area and in certain country districts in accordance with the provisions of the *Traffic Act Amendment Act (No. 2), 1969*; see further reference on page 455. At 31 December 1972 the Metropolitan Traffic Area comprised the Cities of Perth, Fremantle, Melville, Nedlands, South Perth, Stirling and Subiaco; the Towns of Canning, Claremont, Cockburn, Cottesloe, East Fremantle, and Mosman Park; the Shires of Armadale-Kelmscott, Bassendean, Bayswater, Belmont, Gosnells, Kwinana, Peppermint Grove, Rockingham and Serpentine-Jarrahdale; and parts of the Shires of Mundaring and Swan. Outside these areas of Police responsibility for vehicle licensing, each local government authority licenses vehicles in its own district.

The Traffic Act provides that the issue of drivers' and riders' licences and used car dealers' licences throughout the State shall be the function of the Police Department.

The following table shows the number of motor vehicles, classified according to type, on register in the Perth Statistical Division (see map of Western Australia following Index) and in the whole of Western Australia for selected years between 1946 and 1972. Vehicles owned by the Commonwealth Government are not licensed under the Traffic Act but are included in the figures. The table also gives the estimated number of vehicles per 1,000 of population and the number of persons per vehicle. The figures show that over this period of twenty-six years there has been a threefold increase in the ratio of vehicles to population.

## MOTOR VEHICLES ON REGISTER (a) AND RATIO TO POPULATION

At 30 June—	Motor cars and station wagons	Light and heavy commercials, omnibuses	Motor cycles and scooters	Total	Estimated number of vehicles per 1,000 of population (b)		Estimated number of persons per vehicle (b)	
					Motor cars and station wagons	All motor vehicles (a)	Motor cars and station wagons	All motor vehicles (a)
	('000)	('000)	('000)	('000)				
PERTH STATISTICAL DIVISION								
1946 ....	20.0	9.7	4.5	34.2	68	116	14.7	8.6
1951 ....	34.4	17.5	9.5	61.3	97	172	10.4	5.8
1956 ....	65.4	25.9	9.3	100.7	155	239	6.4	4.2
1961 ....	95.5	29.0	9.1	133.6	201	281	5.0	3.6
1966 (c) ....	153.9	35.2	6.3	195.4	275	349	3.6	2.9
1968 (c) ....	189.3	41.2	6.7	237.2	*309	388	3.2	2.6
1969 (c) ....	210.2	45.0	7.2	262.4	*327	*408	3.1	*2.4
1970 (c) ....	233.1	49.2	8.0	290.3	*347	*432	2.9	2.3
1971 (c) ....	251.9	52.2	8.7	312.9	*358	*445	2.8	2.2
1972 (d) ....	257.4	53.6	9.7	320.7	355	443	2.8	2.3
WESTERN AUSTRALIA (e)								
1946 ....	31.4	28.9	6.8	67.1	64	136	15.7	7.3
1951 ....	56.2	47.9	14.5	118.7	97	205	10.3	4.9
1956 ....	99.2	62.8	13.0	175.0	147	259	6.8	3.9
1961 ....	141.6	71.0	12.6	225.2	192	306	5.2	3.3
1966 (c) ....	219.8	84.4	8.8	313.0	259	369	3.9	2.7
1968 (c) ....	263.6	92.6	9.6	365.7	288	400	3.5	*2.6
1969 (c) ....	288.7	96.6	10.4	395.8	*302	*414	3.3	2.4
1970 (c) ....	316.4	102.3	11.7	430.4	*319	*434	3.1	2.3
1971 (c) ....	346.0	107.6	13.2	466.8	*336	*453	3.0	*2.3
1972 (d) ....	345.9	105.3	14.4	465.6	328	442	3.0	2.3

(a) Excluding tractors, trailers, caravans, and plant and equipment such as bulldozers, road graders and rollers, and mobile cranes.

(b) The estimates shown for 30 June 1968 and later have been revised in accordance with the final results of the 1971 Population Census.

(c) Subject to revision when final results of the census of motor vehicles on register at 30 September 1971 become available.

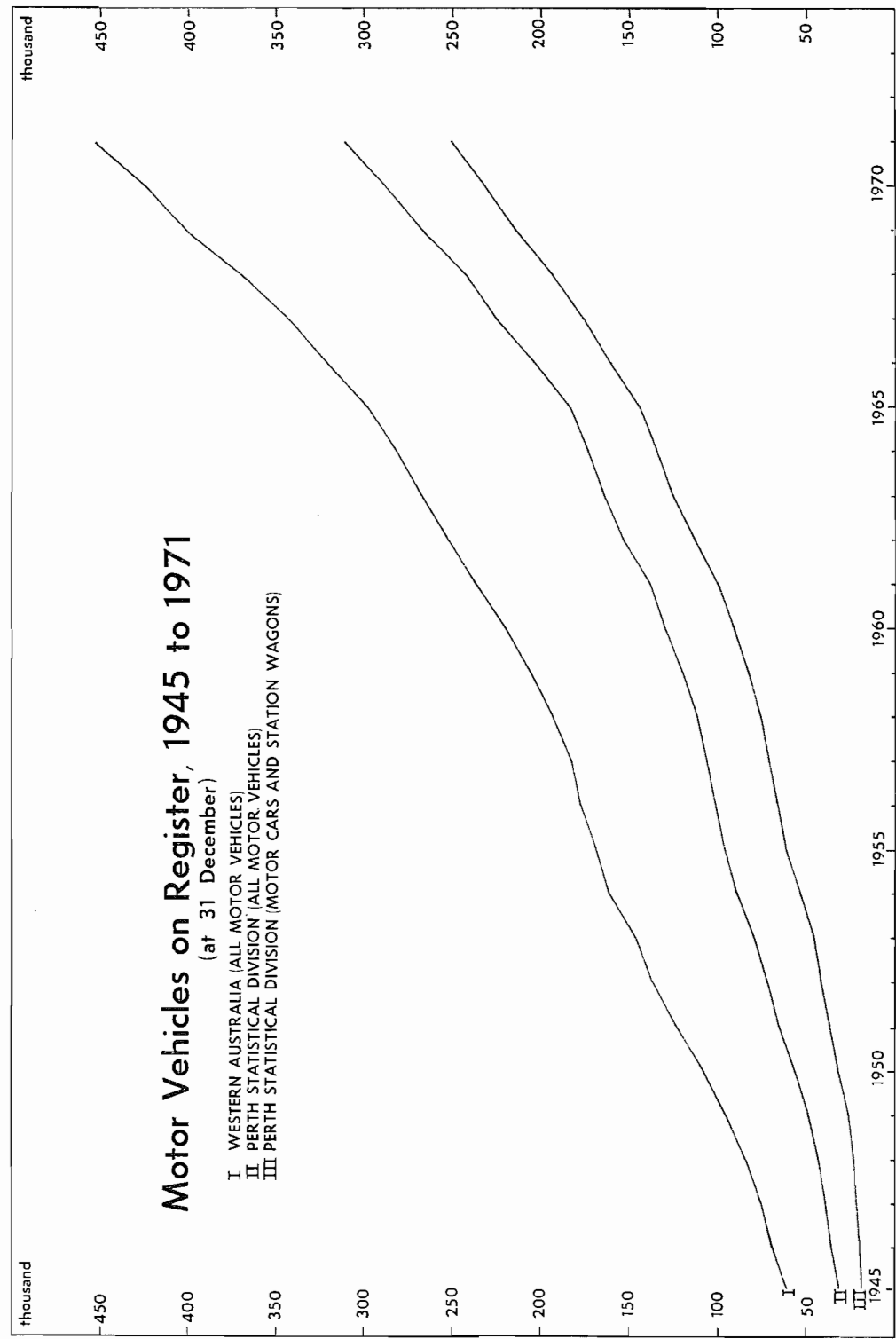
(d) Based on preliminary motor vehicle census figures of 30 September 1971. Not comparable with figures for 1966 to 1971. See footnote (c).

(e) Includes Commonwealth Government-owned vehicles (other than those of the defence services) listed with the Commonwealth Motor Vehicle Registry, Canberra. At 30 June 1972 there were in Western Australia 2,449 such vehicles comprising 249 motor cars, 522 station wagons, 550 light commercials, 992 heavy commercials, 35 omnibuses and 101 motor cycles.

\* Revised.

Traffic control in general is exercised by the Police Department in the Metropolitan Traffic Area (except for certain powers in relation to the parking of vehicles granted the Perth City Council by the *City of Perth Parking Facilities Act, 1956-1970*) and in other areas for which vehicle licensing and traffic control powers have been conferred on the Commissioner of Police. Outside these Police-controlled areas, control is vested by the Traffic Act in the local government authorities, each of which is required by the Act to appoint at least one traffic inspector for its district.

In June 1965, a Departmental Committee was appointed by the State Government to investigate country traffic control, and to consider and report upon the necessity for the establishment of a single traffic authority throughout the State responsible for traffic control only; licensing of vehicles only; or both functions.



The majority of the committee, in a report which was presented in April 1966, recommended that 'the Police Department be established as the sole authority responsible for the enforcement of the Traffic Act throughout the State'. A further majority recommendation was to the effect that 'licensing of vehicles throughout the State be made the responsibility of a single authority and that the Commissioner of Police is the appropriate authority to assume this responsibility.' Although the recommendations were not adopted by the Government, it was decided that a local authority exercising vehicle licensing and traffic control powers in any territory outside the Metropolitan Traffic Area might voluntarily transfer these powers to the Police Department. Legislative authority for any such transfer is contained in the *Traffic Act Amendment Act (No. 2)*, 1969 which provides that if a local authority, by resolution of its Council, so requires, the Minister may, by notice in the *Government Gazette*, confer on the Commissioner of Police all the powers and duties imposed on the local authority by the Traffic Act, other than those relating to road construction. The Shire Councils of Broome and West Kimberley were the first local government authorities to avail themselves of this provision, and the transfer of powers became effective from 1 January 1969. Other Shires which voluntarily transferred vehicle licensing and traffic control powers to the Police Department were Serpentine-Jarrahdale (1 January 1970), Esperance, Manjimup and Ravensthorpe (1 October 1970), Merredin (1 December 1970), Busselton (1 April 1971), Ashburton, Lake Grace, Murray and Wyndham-East Kimberley (1 July 1971), Marble Bar, Nullagine, Roebourne and Tableland (1 July 1972), Kondinin (1 August 1972), Northam (Town) and Port Hedland (1 October 1972), Coolgardie (1 January 1973), and Halls Creek (1 April 1973).

### Finance for Roads

The principal source of revenue for road works in Western Australia is in the form of Commonwealth financial assistance authorised by a series of Acts, the first of which, the Main Roads Development Act, was passed in 1923. The legislation currently in operation for the provision of grants to the States for or in connection with roads is the *Commonwealth Aid Roads Act* 1969.

The *Commonwealth Aid Roads Act* 1969 authorises the Commonwealth to grant an amount of \$1,252.05 million as financial assistance to the States in relation to roads during the five-year period from 1 July 1969 to 30 June 1974. The assistance comprises a 'principal grant' of \$1,200 million and a 'supplementary grant' of \$52.05 million. The principal grant is apportioned among the six States and must be spent on specified classes of roads and on road planning and research. Moneys are provided from the supplementary grant to the States of Western Australia, South Australia and Tasmania, and are available for the construction and maintenance of roads generally. The annual amounts payable from the principal grant increase from \$180 million in 1969-70 to \$310 million in 1973-74, while those payable from the supplementary grant decrease from \$13 million to \$6.80 million.

Western Australia's share of the principal grant of \$1,200 million is \$159.6 million, of which \$62.41 million is required to be spent on the construction of urban arterial roads, \$23.91 million on the construction of rural arterial roads, \$70.88 million on the construction and maintenance of other rural roads, and \$2.40 million on road planning and research. Western Australia's share of the supplementary grant of \$52.05 million is \$40.80 million.

Payment of moneys provided by the *Commonwealth Aid Roads Act* 1969 is contingent on a State's expenditure on roads from its own resources. To qualify for the full amount of the grant a State must increase its annual expenditure on roads in proportion to the increase in the number of motor vehicles on the register in that State.

The *Traffic Act Amendment Act (No. 2)*, 1969 and the *Main Roads Act Amendment Act*, 1969, both of which came into operation on 1 July 1969, established a new system for the receipt and disbursement of moneys to be spent on roads. Other Western Australian Acts which provide revenue for road purposes are the *Road Maintenance (Contribution) Act*, 1965-1972 (see page 273) and the *Transport Commission Act*, 1966-1972 (see pages 273 and 463).

The *Traffic Act, 1919-1972* requires that there shall be paid to the Main Roads Trust Account, maintained under the Main Roads Act, the motor vehicle licence fees received by local government authorities, or by the Commissioner of Police as the licensing authority in the Metropolitan Traffic Area and other areas for which vehicle licensing (and traffic control) powers have been conferred on the Commissioner. Provision is made for the retention by these authorities of specified amounts to cover costs of administration in respect of motor vehicle licensing. The Commissioner of Police is also required to pay into the Account one-half of the fees which he receives on the issue or renewal of drivers' licences.

The *Main Roads Act Amendment Act, 1969* provides that there shall be paid to the Main Roads Trust Account moneys received from the Commonwealth as financial assistance in relation to roads; amounts payable under the provisions of the Traffic Act or any other Act; moneys appropriated by the Parliament; and payments by local government authorities in respect of permanent works and the maintenance of main roads and developmental roads. Moneys standing to the credit of the Account are used to meet expenditure by the Commissioner of Main Roads on the administration of the Act and the construction of roads and associated works, and to provide funds to local government authorities for roads and road works.

The Act provides that every local government authority shall be paid from the Main Roads Trust Account an annual grant calculated by applying a percentage increase to a 'base grant' specified for each authority. An additional grant is payable to any local government authority whose annual expenditure on road construction from its own resources exceeds a prescribed amount. The Act requires that one-half of the moneys received by a local authority in the form of grants shall be spent on the construction of urban arterial roads where its district is within the Perth Statistical Division, and on the construction of rural roads other than arterial rural roads where its district is outside the Division. The remaining moneys are to be applied to the construction and maintenance of roads generally.

Grants payable from the Main Roads Trust Account constitute the principal revenue available to local government authorities for road construction and maintenance. Other moneys may be provided from the ordinary revenue of a local authority or from loans raised for road purposes.

**Beef Cattle Roads.** In addition to grants made under the Commonwealth Aid Roads legislation, the Commonwealth Government provided financial assistance, during the six-year period ended 30 June 1967, in terms of a series of Western Australia Grant (Beef Cattle Roads) Acts, the first of which was passed in 1961. The aim of this assistance was to improve the standard of roads used for the transport of beef cattle in the Kimberley. During the period of the programme almost \$17 million was spent, the State Government matching Commonwealth contributions on a dollar for dollar basis. An extension of Commonwealth financial assistance is authorised by the *States Grants (Beef Cattle Roads) Act 1968*. The Act provides for a contribution of up to \$9.5 million as Western Australia's share of funds for a further programme of construction during a period of seven years commencing on 1 July 1967. The grants are again conditional upon equal expenditure by the State and by 30 June 1972 had totalled \$6.6 million.

#### ROAD PASSENGER TRANSPORT SERVICES

Motor omnibus services (as well as a passenger ferry service) in the metropolitan area are operated by the Metropolitan (Perth) Passenger Transport Trust, constituted under the *Metropolitan (Perth) Passenger Transport Trust Act, 1957-1966*. For the purposes of the Act, the metropolitan area is defined by a proclamation of 1 May 1958 as being 'all the land within a circle having a radius of 30 miles from the Perth Town Hall' and in addition, an area bounded by the South Western Highway and the ocean, extending southward to an east-west line one mile south of the town of Pinjarra. The trolley-bus services formerly operated by the Trust were discontinued on 29 August 1969.

Road transport of passengers outside the metropolitan area is provided by the railways road services (see pages 446-7), which cover long-distance routes between Perth and country centres; by The Eastern Goldfields Transport Board, which serves the Kalgoorlie-Boulder urban area under an agreement with the Kalgoorlie and Boulder local government authorities; and by privately-owned omnibus services, which operate mainly in and around country centres. Extensive tourist services operate mainly from Perth.

In certain country areas, children are taken to and from school by motor bus at government expense. In 1970-71 the cost to the Government of school transport services was \$3,281,817. The number of omnibuses engaged was 691. They travelled a daily total of 45,858 miles and carried 22,794 children daily.

Details of the operations of omnibus services in Western Australia during the five years ended 30 June 1971 are given in the following table.

## OMNIBUS SERVICES (a)

Year	Route miles operated (b)	Omnibuses at end of year	Omnibus miles run '000	Passenger-journeys '000	Employees at end of year	Operating revenues (c) \$'000	Operating expenses \$'000	Depreciation \$'000	Interest \$'000
------	--------------------------	--------------------------	------------------------	-------------------------	--------------------------	-------------------------------	---------------------------	---------------------	-----------------

## METROPOLITAN (PERTH) PASSENGER TRANSPORT TRUST (d)(e)

1966-67	626	653	18,708	53,126	1,764	6,676	6,529	581	426
1967-68	642	681	19,031	52,929	1,753	7,012	6,734	630	452
1968-69	628	688	19,736	54,713	1,737	7,205	7,320	626	463
1969-70	633	688	20,919	55,804	1,752	7,918	8,011	636	505
1970-71	748	726	22,021	57,181	1,795	8,410	9,352	664	553

## WESTERN AUSTRALIAN GOVERNMENT RAILWAYS

1966-67	3,572	64	1,945	237	137	542	597	75	33
1967-68	3,958	61	1,875	228	142	549	610	76	34
1968-69	4,045	63	1,958	234	145	596	635	104	66
1969-70	4,119	63	1,930	*222	148	613	654	114	73
1970-71	4,044	52	1,867	207	148	645	712	123	83

## THE EASTERN GOLDFIELDS TRANSPORT BOARD

1966-67	14	12	185	684	14	57	60	5	.....
1967-68	14	15	232	734	18	69	78	9	(f)
1968-69	14	19	275	791	19	84	82	11	(f)
1969-70	14	21	421	899	19	118	126	13	1
1970-71	14	17	503	667	21	130	138	15	.....

## PRIVATE

1966-67	4,223	41	847	1,431	51	238	233	30	3
1967-68	3,895	35	1,231	1,162	48	382	390	30	4
1968-69	(g)	37	1,098	1,199	46	419	440	38	8
1969-70	(g)	(h) * 161	(h) 1,830	(h) 1,161	(g)	(h) 767	(g)	(g)	(g)
1970-71	(g)	(h) 176	(h) 2,204	(h) 1,103	(g)	(h) 894	(g)	(g)	(g)

(a) Excludes tourist services. (b) Excludes school bus routes. (c) Passenger fares and subsidies only, except for private omnibus services which show total operating revenues. (d) For passenger ferry operations, see page 460. (e) Includes operations of trolley-buses until 29 August 1969 when the service was discontinued. (f) Less than \$500. (g) Not available. (h) New series; includes tourist and charter services. \* Revised.

## MOTOR VEHICLE USAGE

Some information on the usage of motor vehicles was obtained in a sample survey conducted throughout Australia by the Commonwealth Bureau of Census and Statistics in November 1963. The sample comprised 19,676 vehicles, of which 2,742 were cars or station wagons. Because the survey results are based on a sample, they are subject to sampling variability and may therefore differ somewhat from the results that would

have been obtained from a complete enumeration of all registered motor vehicles. Details, including particulars relating to goods-carrying vehicles, appear in *Survey of Motor Vehicle Usage, 1963—Preliminary Bulletin: States and Territories* published by the Commonwealth Statistician, Canberra.

A further sample survey of motor vehicle usage was undertaken, based on the census of motor vehicles on register at 30 September 1971. The final phase of the survey was completed early in 1973 and preliminary results are expected to be available towards the end of this year.

### ROAD TRAFFIC ACCIDENTS

Statistics of road traffic accidents are prepared from information concerning accidents in public thoroughfares, as reported to officers of the Police Department in the Metropolitan Traffic Area and other areas as prescribed (see page 455) and, outside those areas, to traffic inspectors employed by local government authorities and/or police officers. Accidents involving casualties are those which result in the death of any person within a period of thirty days after the accident, or in which any person suffers bodily injury to an extent requiring surgical or medical treatment.

The following table shows, for each year during the period 1967 to 1971, the number of accidents involving casualties which occurred in Western Australia and in Australia.

The number of persons injured per 100,000 of mean population was higher in Western Australia than the corresponding Australian figure in each year except 1969 and 1971. However, the number of persons injured per 10,000 motor vehicles on register was higher in Australia as a whole than in Western Australia for each of the years shown.

#### ROAD TRAFFIC ACCIDENTS INVOLVING CASUALTIES WESTERN AUSTRALIA AND AUSTRALIA

Particulars	1967	1968	1969	1970	1971
WESTERN AUSTRALIA					
Accidents involving casualties—					
Total .....	4,659	4,708	4,809	5,218	5,178
Per 10,000 motor vehicles on register .....	137	*128	121	122	113
Per 100,000 of mean population (a) .....	530	514	503	525	502
Number of persons killed—					
Total .....	256	320	311	351	332
Per 10,000 motor vehicles on register .....	8	9	8	8	7
Per 100,000 of mean population (a) .....	29	35	33	35	32
Number of persons injured—					
Total .....	6,426	6,553	6,788	7,373	7,328
Per 10,000 motor vehicles on register .....	189	179	170	172	160
Per 100,000 of mean population (a) .....	*730	*716	*710	*742	710
AUSTRALIA					
Accidents involving casualties—					
Total .....	57,253	58,759	62,597	65,210	65,210
Per 10,000 motor vehicles on register .....	139	135	136	134	127
Per 100,000 of mean population (a) .....	485	489	511	521	511
Number of persons killed—					
Total .....	3,166	3,382	3,502	3,798	3,590
Per 10,000 motor vehicles on register .....	8	8	8	8	7
Per 100,000 of mean population (a) .....	27	28	29	30	28
Number of persons injured—					
Total .....	80,021	82,210	87,864	91,554	91,036
Per 10,000 motor vehicles on register .....	194	189	191	188	177
Per 100,000 of mean population (a) .....	678	684	717	732	714

(a) Based on final results of the Population Census of 30 June 1971.

\* Revised.

In the next table road traffic accident casualties which occurred in Western Australia during the five years ended 31 December 1971 are classified according to type of road user. The figures shown in the category 'Other' refer to such persons as bystanders, train drivers, riders of horses and drivers of animal-drawn vehicles.

## ROAD TRAFFIC ACCIDENTS—CASUALTIES ACCORDING TO TYPE OF ROAD USER

Type of road user	1967	1968	1969	1970	1971
PERSONS KILLED					
Drivers of motor vehicles ....	113	143	124	137	136
Motor cyclists (a) ....	6	7	18	8	5
Pedal cyclists ....	4	8	9	4	2
Passengers—					
Pillion ....	....	1	3	3	2
Other ....	75	105	84	117	116
Pedestrians ....	58	56	73	74	64
Other ....	....	....	....	8	7
Total ....	256	320	311	351	332
PERSONS INJURED					
Drivers of motor vehicles ....	2,680	2,680	2,863	3,247	3,228
Motor cyclists (a) ....	329	328	325	361	439
Pedal cyclists ....	339	275	340	247	242
Passengers—					
Pillion ....	45	54	51	54	72
Other ....	2,263	2,431	2,468	2,752	2,664
Pedestrians ....	763	781	715	689	661
Other ....	7	4	26	23	22
Total ....	6,426	6,553	6,788	7,373	7,328

(a) Includes riders of motor scooters.

The following table gives a classification of casualties according to the ages of persons killed and persons injured during each year of the period from 1967 to 1971.

## ROAD TRAFFIC ACCIDENTS—CASUALTIES CLASSIFIED ACCORDING TO AGE

Year	Age last birthday (years)										Total		
	0-4	5-6	7-16	17-20	21-29	30-39	40-49	50-59	60 and over	Not stated			
PERSONS KILLED													
1967	....	....	3	4	22	48	43	29	27	26	52	2	256
1968	....	....	11	6	29	54	75	35	29	27	51	3	320
1969	....	....	13	6	27	56	70	35	27	21	56	....	311
1970	....	....	14	3	31	58	76	34	41	42	52	....	351
1971	....	....	10	6	34	52	72	33	29	34	62	....	332
PERSONS INJURED													
1967	....	....	234	121	792	1,344	1,185	627	603	482	457	581	6,426
1968	....	....	233	142	759	1,364	1,276	676	561	452	409	681	6,553
1969	....	....	261	134	867	1,383	1,293	728	608	424	501	589	6,788
1970	....	....	238	117	815	1,624	1,524	765	697	480	479	634	7,373
1971	....	....	246	116	826	1,619	1,594	785	668	470	481	523	7,328

Road traffic accidents during the years ended 31 December 1970 and 1971 are classified in the next table according to nature of accident and type of vehicle involved. It should be noted that, as accidents (and casualties) may involve more than one type of vehicle and, in such cases, are classified to each type involved, it is not appropriate to derive totals by adding the figures shown in the second part of the table.

For additional information on road traffic accidents in this State, the reader is referred to the mimeographed bulletin *Road Traffic Accidents Involving Casualties* issued quarterly and annually by the Western Australian Office of the Bureau of Census and Statistics.

### ROAD TRAFFIC ACCIDENTS NATURE OF ACCIDENT AND TYPE OF VEHICLE INVOLVED

Nature of accident and type of vehicle involved	1970			1971		
	Accidents involving casualties	Casualties		Accidents involving casualties	Casualties	
		Persons killed	Persons injured		Persons killed	Persons injured
NATURE OF ACCIDENT						
Vehicle colliding with—						
Moving or stationary vehicle (a) ....	3,041	117	4,705	3,021	118	4,671
Railway vehicle ....	16	13	11	13	3	13
Pedestrian ....	708	74	676	682	65	647
Parked vehicle ....	123	3	151	115	10	144
Fixed object ....	10	....	10	11	....	16
Animal or animal-drawn vehicle ....	15	1	24	20	1	22
Vehicle overturning or leaving road ....	1,188	129	1,668	1,209	125	1,690
Passenger accident ....	24	6	23	19	4	16
Other accidents ....	93	8	105	88	6	109
Total ....	5,218	351	7,373	5,178	332	7,328

#### TYPE OF VEHICLE INVOLVED (b)

Motor vehicle—						
Car, other than taxi ....	4,489	269	6,502	4,517	264	6,568
Taxi ....	95	1	138	66		87
Van; utility ....	950	90	1,374	848	58	1,193
Truck ....	372	35	509	292	32	376
Semi-trailer ....	62	9	90	61	25	73
Omnibus ....	72	3	102	63	4	83
Motor cycle, motor scooter ....	402	11	449	478	8	547
Other (c) ....	49	5	56	36	6	44
Pedal cycle ....	247	4	255	237	2	251

(a) Excludes parked vehicles.

(b) See letterpress immediately preceding table.

(c) Includes unidentified vehicles.

### PASSENGER FERRY SERVICE

The Metropolitan (Perth) Passenger Transport Trust operates a passenger ferry service across the Swan River from Perth to South Perth. Particulars of private charter excursions are excluded from the figures in the following table, other than those which relate to operating revenues and expenses.

#### PASSENGER FERRY SERVICE

Year	Ferries at end of year	Miles run (a)	Passenger-journeys (a)	Employees at end of year	Operating revenues	Operating expenses	Depreciation	Interest
1967-68 ....	5	22,308	311,888	9	\$ 47,778	\$ 47,974	\$ 964	\$ 814
1968-69 ....	5	22,524	336,146	9	55,368	53,462	1,216	766
1969-70 ....	5	22,328	367,643	9	70,079	58,233	3,152	5,098
1970-71 ....	5	22,392	357,372	9	74,393	66,468	3,188	6,276
1971-72 ....	5	22,394	370,366	9	78,018	68,130	3,479	6,066

(a) Excludes private charter operations.

### AIR TRANSPORT

The supervision and control of civil air transport throughout Australia is the responsibility of the Commonwealth Department of Civil Aviation. Its regulatory functions include the licensing of air crew, engineering staff, airlines, charter and aerial work operators, flying schools and aerodromes; the approval of fares, freight rates and timetables; and the establishment and operation of air traffic control procedures. It is also responsible for the conduct of search and rescue operations; the provision and maintenance of government aerodromes, aeronautical communication systems and radio navigational

aids; and the specification of required meteorological services. The Department co-operates with the State Transport Commission which has a statutory licensing function in respect of air transport facilities within the State.

An extensive system of regular air services operates in Western Australia for the transport of passengers, freight and mails. The international airport seven miles from Perth is used by international, interstate and intrastate airlines providing services to South Africa, Europe, Singapore, Hong Kong and Japan, to all Eastern States capital cities, to Darwin and to many towns throughout Western Australia.

In December 1972 there were twenty-five aerodromes owned and maintained by the Commonwealth Government in Western Australia in addition to forty licensed aerodromes owned privately or by local authorities, while there were more than 530 landing strips suitable for use by light aircraft throughout the State.

At the same date there were forty-one centres served by regular airlines, five of the centres being also served by commuter services, while a further twenty centres were served by commuter services only.

To enable jet aircraft to operate on main trunk routes throughout the State, visual approach slope indicator lighting systems have been installed at thirteen main airports. Turbo-prop and piston engined aircraft maintain the feeder and commuter services between the smaller centres and the trunk routes. (The principal air routes in or through Western Australia at 31 December 1970 are shown on the map of the State following the Index.)

In addition to the aircraft capacity of the airline and commuter services at December 1972 there were 250 aircraft, based at centres throughout Western Australia, available for passenger and freight charter operations or aerial work such as aerial agriculture, aerial surveys, etc. and a further 217 aircraft in the private (*i.e.* not commercial) category.

Perth Airport, which is equipped with electronic and electrical navigation and approach aids to enable operations in periods of low visibility, handled 639,816 intrastate, interstate and overseas passengers in the twelve months ended 31 December 1972. This is almost double the number of airline passengers using Perth Airport five years previously.

The Royal Flying Doctor Service operates from a number of centres and details of its activities are given in Chapter V, Part 3.

**Airport Operations.** The following table, compiled from information published by the Department of Civil Aviation, provides a summary of operations at principal airports in Western Australia during each of the years 1969 to 1971. The figures refer only to regular public transport operations on scheduled services by licensed airlines and do not include charter and commuter services.

CIVIL AVIATION—TRAFFIC HANDLED AND AIRCRAFT MOVEMENTS  
AT PRINCIPAL AIRPORTS

Airport	Passengers (a)			Freight (short tons) (b)			Aircraft movements (c)		
	1969	1970	1971	1969	1970	1971	1969	1970	1971
Broome ....	6,930	8,333	10,691	183	244	246	1,701	1,562	1,576
Carnarvon ....	10,231	10,112	13,647	165	138	140	1,562	1,558	1,656
Dampier ....	15,077	27,843	65,986	295	457	910	1,290	1,815	2,921
Derby ....	20,418	21,707	16,025	1,172	1,231	1,130	2,845	2,764	2,589
Geraldton ....	18,550	18,272	20,593	77	64	87	1,589	1,392	1,624
Kalgoorlie ....	18,527	31,521	32,193	161	278	303	710	1,186	1,136
Kununurra ....	8,789	12,279	15,294	393	405	475	1,291	1,660	1,749
Learmonth ....	5,609	6,245	7,728	97	95	220	1,392	1,413	1,042
Newman ....	(d)	15,037	22,100	(d)	210	322	(d)	1,340	1,791
Perth—	(e)	(e)	24,019	(e)	(e)	317	(e)	(e)	1,963
Internal (f) ....	381,839	467,469	541,412	8,241	9,090	10,040	8,906	10,561	11,985
International ....	53,830	69,235	84,133	781	933	1,243	1,864	2,601	3,107
Port Hedland ....	36,732	48,260	51,804	1,217	1,754	1,829	2,841	4,407	4,135
Tom Price....	9,348	13,859	15,371	203	253	184	836	1,014	1,578

(a) Total of embarkations and disembarkations. (b) Total of freight loaded and unloaded. Short ton = 2,000 lb.  
(c) Total of arrivals and departures. (d) Commenced regular transport operations 20 October 1968. Statistics not available prior to 1970. (e) Commenced regular transport operations 1 August 1971. (f) Interstate and intrastate.

**Casualty Accidents.** The following table shows the number of accidents involving civil aircraft which resulted in death or serious injury. The statistics relate to the following classes of operation: regular public transport; charter flights; aerial agriculture; training; other aerial work; private; and gliding.

**CIVIL AVIATION—ACCIDENTS INVOLVING CASUALTIES (a)**

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
<b>WESTERN AUSTRALIA</b>					
Number of—					
Accidents (a) ....	2	3	6	6	3
Persons killed ....	2	(b) 29	2	10	7
Persons seriously injured ....	1	2	9	3	....
<b>AUSTRALIA</b>					
Number of—					
Accidents (a) ....	36	17	46	31	28
Persons killed ....	47	(b) 47	49	48	37
Persons seriously injured ....	29	20	40	24	23

(a) Accidents involving civil aircraft which resulted in death or serious injury. Excludes parachutists killed on contact with earth after an uninterrupted fall. Excludes accidents outside Australia involving aircraft on the Australian register. (b) Includes 26 persons killed in one accident which occurred on 31 December 1968.

### TRANSPORT CO-ORDINATION

#### State Transport Co-ordination Act

The *State Transport Co-ordination Act, 1966*, which came into operation on 19 June 1967, repeals the *State Transport Co-ordination Act, 1933-1961*. The Act provides for the appointment of a Director General of Transport, a Transport Advisory Council and a Transport Users' Board.

The duties of the Director General are to recommend to the Minister transport policy or changes in transport policy and measures for achieving policy objectives and the co-ordination of the various forms of transport service; to implement such policies and measures; to provide for research in transport planning and operation and in the economics of every form of transport; to co-ordinate capital works programmes for public transport services; to inquire into existing transport services; to recommend the provision of road transport services; to examine and report on any proposal for the construction of a new railway; to recommend the closure or partial suspension of any transport service, including a railway; and to advise the Minister on the administration of specified Acts relating to transport.

The Transport Advisory Council comprises the Director General of Transport (as Chairman), the Commissioner of Railways, the Commissioner of Main Roads, the Commissioner of Transport, the Chairman of the Metropolitan (Perth) Passenger Transport Trust, the Chairman of the Western Australian Coastal Shipping Commission, a representative of the West Australian Road Transport Association, and a representative of operators of regular air transport services. The duties of the Council are to formulate proposals in respect of, and make recommendations on, any matter referred to it by the Minister or the Director General of Transport, or that it may bring forward of its own motion.

The Transport Users' Board consists of the Director General of Transport (as Chairman) and four persons appointed by the Governor on the nomination of the Minister. These four members must be persons who, in the opinion of the Minister, are capable of assessing the financial and economic effect on transport users of any proposed or existing transport policy, two of them being persons particularly versed in the transport needs of rural industries. The Transport Users' Board is charged with the duty of considering and, where it so resolves, of making recommendations on, any matter affecting a transport service operating in the State, or concerning the lack or inadequacy of a transport service.

### Transport Commission Act

The *Transport Commission Act, 1966-1972* provides for the appointment of a Commissioner of Transport. Under the direction of the Minister, the Commissioner is required to call tenders for the provision of road transport where, in the opinion of the Minister, the requirements of a district are not adequately served by any form of transport; to administer and direct the payment of such subsidies with respect to the provision of transport as may be authorised pursuant to the Act; and to consider and determine all applications for licences in respect of public vehicles. In regard to such licences the Commissioner may specify any particular conditions concerning the granting or holding of a licence, and may determine, in respect of any particular licence or group of licences, the conditions that shall be imposed on the granting and holding of such licences.

The public vehicles licensed by the Commissioner are omnibuses (other than those operated by the Metropolitan (Perth) Passenger Transport Trust), commercial goods vehicles, and aircraft.

In the licensing of omnibuses the Commissioner is empowered to prescribe the routes to be operated, the stopping places at which passengers may be picked up or set down, the fares to be charged, the timetables to be observed and the maximum number of passengers to be carried at any one time on any vehicle. The Commissioner may impose such other conditions as he thinks proper in the public interest.

All commercial goods vehicles operating on public roads are required to be licensed, except those which operate solely in the area within a radius of twenty miles from the General Post Office, Perth, or within a radius of twenty miles from the owner's place of business (or, where such place of business is situated more than forty miles from the General Post Office, Perth, within a radius of twenty-five miles). Exemptions from licensing provisions also apply to vehicles used for the transport of specified types of goods, mainly primary produce including forest products, minerals and livestock, or for the transport of goods within particular areas or between particular points.

Aircraft licences issued by the Commissioner relate to regular services and charter flights. Aircraft exempted from the licensing provisions of the Act are those operated solely in connection with the Royal Flying Doctor Service or in the course of aerial spraying, crop dusting, seed sowing, fertiliser distribution, photography, geophysical surveying, dingo baiting or whale or fish spotting.

The *Road and Air Transport Commission Act Amendment Act, 1970* widens the scope of the original Act to include control of the operations of ships engaged in the coasting trade. Under the provisions of the 1970 legislation, ships other than those operated by the Western Australian Coastal Shipping Commission may not engage in the coasting trade unless authorised to do so by a licence or permit granted by the Commissioner of Transport.

Financial transactions are recorded in a Transport Commission Fund account as required by the Act. The principal revenues of the Fund are receipts from licence and permit fees and amounts received from the Treasury for distribution in the form of subsidy to transport operators and others in certain areas. The expenditure from the Fund includes amounts necessary to meet administration costs, disbursements to the Main Roads Department and to local government authorities for the maintenance and improvement of roads, moneys required to be held in trust for the provision and maintenance of landing grounds, and the payment of subsidies. Subsidies are paid principally on the cartage of grain and fertilisers, but also on the air transport of perishable goods to remote parts of the State and on travel, mainly by air, by students normally resident in those areas.

### Taxi-cars (Co-ordination and Control) Act

The *Taxi-cars (Co-ordination and Control) Act, 1963-1970* constitutes a Taxi Control Board of seven members to provide for the co-ordination and control of taxi-cars and the registration and conduct of taxi-car drivers in the Metropolitan Traffic Area and such other areas as may be declared. The Act provides that the Board shall consist

of the Commissioner of Transport (as Chairman); a member of the police force appointed by the Commissioner of Police; and five persons, appointed by the Governor, comprising one to represent the interests of local authorities, chosen from a panel of names that is obtained by each local authority submitting the name of one person; one nominated by the W.A. Taxi Operators' Association; two who are taxi-car owners or operators and who are elected by taxi-car owners and operators; and one nominated by the Metropolitan (Perth) Passenger Transport Trust.

The principal functions of the Board are the formulation of schemes for the co-ordination and control of taxis; the determination of the number and kind of taxis to be licensed; the issue of licences; the determination of fares and other charges; the supervision of the operation of taxis and the regulation of stands; the registration of, and the control of the conduct and dress of, drivers; and the enforcement of regulations made under the Act.

It is provided that the number of taxis that may be licensed to operate within the Metropolitan Traffic Area shall not at any time exceed one for every 700, or be less than one for every 800, of the population of the area.

The Act establishes a Taxi Control Fund for the receipt of fees payable on the issue, renewal or transfer of licences. The expenses of the administration of the Act are paid from the Fund.

*Chapter IX—continued*  
**Part 4—Communication**

**POSTS, TELEGRAPHS AND TELEPHONES**

The first postmasters in the Colony of Western Australia were appointed at Perth and Fremantle in 1830 and a Postal Department was established by the Colonial Government in 1834. Telegraphic communication, between Perth and Fremantle, was inaugurated in 1869 by means of a private line, which was purchased by the Government in 1871. A telephone exchange system, installed and operated by the Government, was opened at Perth in 1887.

In 1901, following the federation of the Australian Colonies, the post, telegraph and telephone services of the State Governments were transferred to the Commonwealth Government. The Post and Telegraph Act of 1901 placed the services under the control of a Commonwealth Minister to be known as the Postmaster-General.

The following table shows the number of persons employed by the Postmaster-General's Department in Western Australia, and the number of post offices and telephone offices throughout the State at 30 June in each year from 1968 to 1972. Full-time employees are those directly under the control of the Department. The remainder, shown as 'Other employees', provide services, which may or may not occupy their full time, under contract or in return for payments appropriate to work performed. 'Non-official' post offices are conducted by persons who are not members of the Commonwealth Public Service, and are frequently operated in conjunction with some other business activity. 'Telephone offices' are those where trunk-line calls and local calls may be made and telegrams lodged by members of the public, but which do not provide postal facilities. Multi-coin public telephones are not included.

**POSTMASTER-GENERAL'S DEPARTMENT—NUMBERS OF EMPLOYEES AND OFFICES  
 WESTERN AUSTRALIA**

Particulars	At 30 June—				
	1968	1969	1970	1971	1972
<b>Full-time employees—</b>					
Permanent officers .....	5,561	5,808	6,001	6,400	6,777
Temporary and exempt officers .....	1,904	2,156	2,678	2,767	2,530
<b>Total .....</b>	<b>7,465</b>	<b>7,964</b>	<b>8,679</b>	<b>9,167</b>	<b>9,307</b>
<b>Other employees—</b>					
Non-official postmasters and staff .....	492	482	461	444	435
Telephone office-keepers .....	202	183	161	161	143
Mail contractors (a) .....	323	323	305	338	297
Part-time employees .....	314	325	340	391	371
<b>Total .....</b>	<b>1,331</b>	<b>1,313</b>	<b>1,267</b>	<b>1,334</b>	<b>1,246</b>
<b>Total, Employees .....</b>	<b>8,796</b>	<b>9,277</b>	<b>9,946</b>	<b>10,501</b>	<b>10,553</b>
<b>Post offices—</b>					
Official .....	156	158	161	163	161
Non-official .....	476	468	445	430	422
<b>Telephone offices .....</b>	<b>198</b>	<b>181</b>	<b>162</b>	<b>159</b>	<b>139</b>
<b>Total, Offices .....</b>	<b>830</b>	<b>807</b>	<b>768</b>	<b>752</b>	<b>722</b>

(a) Includes persons employed by contractors to drive vehicles on mail runs.

Figures relating to the cash receipts and expenditure of the Department in Western Australia during each of the financial years 1968-69 to 1971-72 are given in the following table. They represent actual collections and payments in each year, as shown by records kept for Treasury purposes. Some additional items of departmental revenue and expenditure are not apportioned to States and therefore do not appear in the table. As the figures shown relate to actual collections and payments made, they do not represent the net results of the Department's operations for the year. In 1968-69 a new system of classification of items of receipt and expenditure was adopted and consequently the figures shown in the table are not comparable with those for 1967-68 and earlier years.

**POSTMASTER-GENERAL'S DEPARTMENT**  
**CASH RECEIPTS AND EXPENDITURE—WESTERN AUSTRALIA**  
 (\$'000)

Particulars	1968-69	1969-70	1970-71	1971-72
<b>CASH RECEIPTS (a)</b>				
Postal .....	10,698	11,567	13,577	15,716
Telephone .....	26,818	30,452	37,631	45,663
Telegraph .....	1,199	1,523	1,944	2,246
Proceeds of sales .....	375	493	480	326
Recoverable works .....	1,914	2,058	2,156	2,133
International services .....	152	223	182	314
<b>Total .....</b>	<b>41,155</b>	<b>46,317</b>	<b>55,970</b>	<b>66,398</b>
<b>CASH EXPENDITURE (b)</b>				
Salaries and wages .....	27,139	32,585	37,938	44,778
Material .....	22,390	26,203	22,465	23,591
Carriage of mails by contractors .....	749	781	849	916
Buildings, sites, properties .....	3,122	6,025	4,377	4,121
Accommodation services .....	1,805	2,026	2,195	2,434
Other administrative expenses (c) .....	3,343	4,224	4,532	4,783
<b>Total .....</b>	<b>58,547</b>	<b>71,844</b>	<b>72,356</b>	<b>80,643</b>

(a) Actual collections during the year as taken from the cash records of the Post Office.

(b) Actual payments made during the year for all Post Office purposes. (c) Major items within this classification are travelling allowances, repairs to plant, engineering contract works and hire of vehicles.

**POSTMASTER-GENERAL'S DEPARTMENT—PROFIT OR LOSS (a) OF SERVICES**  
**AUSTRALIA**  
 (\$'000)

Particulars	1969-70			1970-71			1971-72		
	Postal	Tele-communications	All services	Postal	Tele-communications	All services	Postal	Tele-communications	All services
Earnings .....	161,866	463,378	625,244	185,599	530,014	715,613	213,364	645,129	858,493
Working expenses .....	172,948	351,393	524,341	199,816	403,077	602,893	210,850	456,470	667,319
Profit or loss before charging interest .....	—11,082	111,985	100,903	—14,217	126,937	112,720	2,514	188,659	191,173
Interest .....	8,786	90,135	98,921	11,272	103,091	114,363	13,767	117,607	131,374
Profit or loss after charging interest .....	—19,868	21,850	1,982	—25,489	23,846	—1,643	—11,253	71,052	59,799

(a) Minus sign (—) denotes loss.

The annual net results of the operations throughout Australia of each service, for the three years ended 30 June 1972 after providing for working expenses (including depreciation, superannuation and furlough liability) and interest charges are shown in the previous table. The amounts appearing under the heading of *Interest* represent interest on funds provided by the Treasury.

### Posts

In the following table, postal matter handled in Western Australia during each year from 1967-68 to 1971-72 is dissected according to the type of article dealt with, and whether received from overseas or posted for delivery in Australia or to an overseas destination.

POSTAL ARTICLES HANDLED  
(Thousands)

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
Posted for delivery within Australia—					
Ordinary postal articles—					
Letter-form .....	159,093	153,580	159,151	158,178	154,859
Other .....	13,252	13,753	14,104	13,719	12,993
Parcels (a) .....	1,158	1,039	1,381	1,417	1,193
Registered articles (b) .....	667	687	751	718	626
Posted for delivery overseas—					
Ordinary postal articles—					
Letter-form .....	7,333	8,218	9,165	9,724	10,124
Other .....	995	985	1,009	878	742
Parcels (a) .....	42	40	53	46	80
Registered articles (b) .....	78	84	96	110	103
Received from overseas—					
Ordinary postal articles—					
Letter-form .....	8,508	5,118	5,679	7,036	7,153
Other .....	6,948	6,204	3,344	2,931	3,084
Parcels (a) .....	106	119	133	137	150
Registered articles (b) .....	53	56	67	65	75

(a) Includes registered, cash on delivery and duty parcels.

(b) Excludes registered parcels; see footnote (a).

### Telegraphs and Telephones

The next two tables relate to telegraph and telephone services in Western Australia in each financial year from 1967-68 to 1971-72. Telephone services comprise ordinary exchange services (*i.e.* those which provide direct access to the exchange system by means of exclusive use of an exchange line), duplex services, party-line services, private branch exchange services and public telephones. The numbers shown as 'Telephone instruments in service' relate to those through which direct access to the exchange system may be obtained.

At 30 June 1972, the pair length of conductors in telegraph and telephone cables in Western Australia was 1,846,506 kilometres. The pair length of aerial wires was 90,042 kilometres and the length of pole routes was 26,553. There were 8,460 tube kilometres of coaxial cable.

The teleprinter exchange service (telex) was introduced in Perth in December 1956. This service enables a subscriber's teleprinter to be connected with that of any other subscriber in the local network or networks in other States.

TELEGRAPHS

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
Number of—					
Offices (a) .....	830	807	768	752	722
Telegrams—					
Within Australia—Dispatched .....	'000 2,359	'000 2,516	'000 2,487	'000 2,259	'000 2,113
Beyond Australia—Dispatched .....	133	152	188	181	176

(a) At 30 June.

## TELEPHONES (a)

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
Number of—					
Exchanges	745	749	746	744	747
Services—					
Metropolitan (b)	101,451	112,510	127,199	136,810	143,866
Other	48,211	53,181	58,857	62,748	66,765
Total	149,662	165,691	186,056	199,558	210,631
Telephone instruments in service—					
Total	208,343	231,845	256,303	285,480	304,044
Per 100 of population (c)	22.8	24.3	25.9	*27.7	28.9

(a) At 30 June. (b) Services connected to exchanges located within 10 miles of the General Post Office, Perth. (c) Figures based on the final results of the 1971 Census of Population. \* Revised.

## TELEPRINTER EXCHANGE NETWORK (TELEX)

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
Number of—					
Services at 30 June	354	477	686	887	1,023
Internal calls (a)	733,638	932,049	1,319,886	1,673,421	2,079,802

(a) Includes Post Office Official traffic.

## RADIOCOMMUNICATION

The Overseas Telecommunications Commission (Australia) is the authority responsible for the operation of telecommunication services between Australia and other countries, with ships at sea and to and between Australia's external Territories.

The Commission was established under the provisions of the *Overseas Telecommunications Act* 1946 which implemented a recommendation of the 1945 Commonwealth Telecommunications Conference for national ownership of the external telecommunication services of the British Commonwealth countries concerned. In 1966 the Commonwealth countries completed a review of the machinery for their collaboration in telecommunications and, as a result, the Commonwealth Telecommunications Organisation was established. The purpose of this body is to promote the efficient exploitation and development of the Commonwealth external telecommunications system.

A number of countries, including Australia, agreed in 1964 to establish a global commercial communications satellite system and Australia, represented by the Commission, is a member of the management body of the sixty-nine nation International Telecommunications Satellite Consortium (INTELSAT).

The Commission operates three 'standard' earth stations (at Carnarvon in Western Australia, Ceduna in South Australia and Moree in New South Wales) which can communicate via satellite with stations in other countries. The standard station at Carnarvon was brought into service on 1 October 1969, enabling a non-standard earth station at Carnarvon to be released for the full-time performance of telemetry, tracking and command functions for the INTELSAT organisation.

The transmission facilities used by the Commission in its external operations are submarine cables, satellites and high frequency radio. It operates a coastal radio service and, in association with the Post Office within Australia and with communication carriers in other Commonwealth and foreign countries, provides public message telegram, telephone, telex, photo-telegram, leased circuit and television services to most countries and places throughout the world.

The coastal radio service provides, as its principal function, essential maritime communications, including distress signals, navigation warnings, air-sea rescue service and radio-medical service messages, meteorological messages and time signals, as well as naval traffic as required. It provides also, by radiotelegraph and radiotelephone, commercial

communications with ships at sea and, by radiotelephone, message communication with small vessels. Western Australian coastal radio stations are located at Perth, Broome, Esperance and Geraldton.

The licensing of civil radiocommunication stations and the transmission of radio messages within Australia are the responsibility of the Postmaster-General's Department. The Royal Flying Doctor Service of Australia, to which reference is made in Part 3 of Chapter V, provides general telegraph facilities in remote areas through its extensive radio network.

At 30 June 1972 there were 160,934 civil radiocommunication stations authorised throughout Australia. They comprised 4,743 fixed stations, 13,637 land stations, 136,134 mobile stations, 6,413 amateur stations and 7 space services.

The numbers of each type of radiocommunication station authorised to operate in Western Australia at 30 June 1972 are given in the next table. The following definitions are relevant in considering the figures shown in the table. *Fixed Stations*—Stations established at fixed locations for communication with other stations similarly established. *Outposts*—Stations established in outback areas for communication with control stations such as those of the Royal Flying Doctor Service. *Land Stations*—Stations established at fixed locations for communication with mobile stations. *Coast Stations*—Land stations for communication with ocean-going vessels. *Mobile Stations*—Equipment installed in aircraft (aeronautical), motor vehicles (land mobile services), harbour vessels (harbour mobile services) and ocean-going vessels (ship), and mobile equipment of organisations such as the Royal Flying Doctor Service. *Radiodetermination Stations*—Stations employed for the determination of position, or the obtaining of information relating to position, by means of the propagation of radio waves. *Space Services*—Radiocommunication services, between earth stations and space stations, between space stations or between earth stations when signals are re-transmitted by space stations, or transmitted by reflection from objects in space, excluding reflection or scattering by the ionosphere or within the earth's atmosphere.

CIVIL RADIOCOMMUNICATION STATIONS AUTHORISED AT 30 JUNE 1972

Type of station	Number	Type of station	Number
<b>TRANSMITTING AND RECEIVING—</b>		<b>TRANSMITTING AND RECEIVING—cont.</b>	
Fixed stations—		Mobile stations—	
Aeronautical ....	4	Aeronautical ....	387
Services with other countries ....	15	Land mobile services ....	13,773
Outpost ....	480	Harbour mobile services ....	237
Other ....	409	Outpost ....	988
Land stations—		Radiodetermination ....	81
Aeronautical ....	36	Ship ....	1,415
Base stations—		Space services ....	2
Land mobile services....	1,507	Amateur ....	505
Harbour mobile services ....	32		
Coast ....	59	TOTAL ....	20,030
Experimental ....	58	RECEIVING ONLY (fixed) ....	73
Repeater ....	42		
		GRAND TOTAL ....	20,103

## BROADCASTING AND TELEVISION

Broadcasting and television services throughout Australia are controlled by the Australian Broadcasting Control Board under the Ministerial direction of the Postmaster-General. The Board is constituted under a provision of the *Broadcasting and Television Act 1942-1972*, which places under its general control the National Broadcasting Service, the National Television Service, the Commercial Broadcasting Service and the Commercial Television Service. The Act prescribes the fees payable for broadcast listeners' licences and television viewers' licences, while the fees to be charged for licences to operate commercial broadcasting and television stations are provided for in the *Broadcasting Stations Licence Fees Act 1964-1966* and the *Television Stations Licence Fees Act 1964-1966*.

The principal functions of the Australian Broadcasting Control Board, which consists of three full-time and two part-time members, are to ensure that services by broadcasting stations and television stations are in accordance with approved plans, that stations are

operated in accordance with appropriate technical standards, and that adequate and comprehensive programmes are provided. Subject to the approval of the Minister and of the Treasurer, the Board may give financial and other assistance to commercial broadcasting stations for the purpose of ensuring that programmes of adequate extent, standard and variety are provided in the areas which they serve. The Board is required to hold public inquiries into applications for licences for commercial broadcasting and television stations in areas for which the Minister proposes to grant licences. It is also the responsibility of the Board to determine, subject to any direction of the Minister, the situation, operating power and operating frequencies of broadcasting and television stations.

The Australian Broadcasting Commission, which is constituted under the *Broadcasting and Television Act 1942-1972*, controls the activities of, and provides programmes for, the National Broadcasting Service and the National Television Service which use transmitters operated by the Postmaster-General's Department. The operations of the Commission are financed by appropriations made by the Commonwealth Parliament.

The income of licensees of commercial broadcasting and television stations is derived from advertisements and other forms of publicity.

Commercial broadcasting stations are operated under licences granted and renewed by the Postmaster-General after taking into consideration any recommendations which have been made by the Broadcasting Control Board. The initial period of a licence is five years and renewals are granted for a period of one year.

Commercial television stations are also operated under licences granted and renewed by the Postmaster-General. The initial grant of a licence is for a period of five years and thereafter the licence is renewable annually.

### Broadcasting and Television Stations

In 1923, the first radio broadcasting station commenced operations in Australia and, in the following year, station 6WF (Westralian Farmers) opened in Perth.

Television commenced in Australia on 16 September 1956 when station TCN, Sydney began regular transmission. By 30 June 1972 the number of stations in operation had increased to a total of one hundred, comprising fifty-two national stations and forty-eight commercial stations.

The first television station in Western Australia commenced full-scale transmission in Perth on 16 October 1959 and, at 30 June 1972, three metropolitan and ten country television stations were operating.

BROADCASTING STATIONS AT 30 JUNE 1972

NATIONAL STATIONS					COMMERCIAL STATIONS				
Type and location	Call sign	Frequency (kHz)	Aerial power (watts)	Hours of service per week (a)	Type and location	Call sign	Frequency (kHz)	Aerial power (watts)	Hours of service per week (a)
Medium frequency—					Perth ....	6IX	1,080	2,000	168
Perth ....	6WF	720	50,000	126	" ....	6KY	1,210	2,000	168
" ....	6WN	810	10,000	126½	" ....	6PM	1,000	2,000	168
Albany ....	6AL	650	400	126	" ....	6PR	880	2,000	168
Broome ....	6BE	670	50	126	" ....	6VA	780	2,000	123
Busselton ....	6BS	680	4,000	126	Albany ....	6BY	900	2,000	116
Carnarvon ....	6CA	850	200	126	Bridgetown ....	6TZ	960	2,000	135
Dalwallinu ....	6DL	530	10,000	126	Bunbury ....	6CI	1,130	2,000	135
Derby ....	6DB	870	2,000	126	Collie ....	6GE	1,010	2,000	121
Esperance ....	6ED	840	1,000	126	Geraldton ....	6KG	980	2,000	117
Kalgoorlie ....	6GF	660	2,000	126	Kalgoorlie ....	6WB	1,070	2,000	116
Geraldton ....	6GN	830	2,000	126	Katanning ....	6MD	1,100	2,000	119
Northam ....	6NM	600	200	126	Merredin ....	6NA	920	2,000	121½
Port Hedland ....	6PH	600	2,000	126	Narrogin ....	6AM	860	2,000	120
Wagin ....	6WA	560	50,000	126	Northam ....				
High frequency—									
Perth ....	VLW	(b)	(b)	126					

(a) To the nearest quarter hour. (b) The station operates two transmitters, of 10,000 and 50,000 watts. Frequencies are varied as required to obtain optimum results.

## TELEVISION STATIONS AT 30 JUNE 1972

Call sign and channel	Area served	Location of transmitter	Authorised frequencies (mHz)	Polarisation and authorised power (kW e.r.p.) (a)	Hours of service per week (b)	Date of commencement of operations (c)
NATIONAL STATIONS						
ABW-2	Perth ....	Bickley ....	Vision .... 63-70 Sound .... 64.25 ..... 69.75	Horizontal .... Vision 100 Sound 20	90	7 May 1960
ABAW-2	Southern Agricultural	Mount Barker	Vision .... 63-70 Sound .... 64.24 ..... 69.74	Vertical .... Vision 100 Sound 20	90	6 June 1966
ABCW-4	Central Agricultural....	Mawson Trig....	Vision .... 94-101 Sound .... 95.26 ..... 100.76	Horizontal .... Vision 100 Sound 20	90	28 March 1966
ABCNW-7	Carnarvon ....	Carnarvon ....	Vision .... 181-188 Sound .... 182.25 ..... 187.75	Horizontal .... Vision 0.1 Sound 0.02	90	30 June 1972
ABGW-6	Geraldton ....	Geraldton ....	Vision .... 174-181 Sound .... 175.25 ..... 180.76	Horizontal .... Vision 10 Sound 2	90	8 December 1969
ABKW-6	Kalgoorlie ....	Kalgoorlie ....	Vision .... 174-181 Sound .... 175.25 ..... 180.75	Horizontal .... Vision 4 Sound 0.8	90	27 January 1970
ABNW-7	Norseman ....	Norseman Microwave Repeater	Vision .... 181-188 Sound .... 182.24 ..... 187.74	Horizontal .... Vision 0.05 Sound 0.01	90	14 April 1971
ABSW-5	Bunbury ....	Mount Lennard	Vision .... 101-108 Sound .... 102.25 ..... 107.75	Horizontal .... Vision 100 Sound 20	90	10 May 1965
COMMERCIAL STATIONS						
STW-9	Perth ....	Bickley ....	Vision .... 195-202 Sound .... 196.25 ..... 201.75	Horizontal .... Vision 100 Sound 20	100	12 June 1965
TVW-7	Perth ....	Bickley ....	Vision .... 181-188 Sound .... 182.25 ..... 187.75	Horizontal .... Vision 100 Sound 20	100	16 October 1959
BTW-3	Bunbury ....	Mount Lennard	Vision .... 85-92 Sound .... 86.24 ..... 91.74	Horizontal .... Vision 50 Sound 10	40	10 March 1967
GSW-9	Southern Agricultural	Mount Barker	Vision .... 195-202 Sound .... 196.24 ..... 201.74	Vertical .... Vision 50 Sound 10	40	23 August 1968
VEW-8	Kalgoorlie ....	Kalgoorlie ....	Vision .... 188-195 Sound .... 189.25 ..... 194.75	Horizontal .... Vision 4 Sound 0.8	30½	18 June 1971

(a) Effective radiated power.

(b) To nearest quarter hour.

(c) Date on which full-scale transmission began.

Television transmissions by means of either a translator station or a repeater station are provided to some areas of the State not served by the stations shown in the above table. Translator stations are low-powered stations which receive signals from a parent station or another translator station and re-transmit those signals on a different frequency channel. They mainly serve isolated areas where there is not satisfactory reception from high-powered stations. Repeater stations are stations of low operating power designed to transmit only programmes recorded on magnetic tape.

At 30 June 1972 two translator stations were in operation in Western Australia, at Kam-balda, receiving signals from national station ABKW-6 and commercial station VEW-8 Kalgoorlie. At the same date television repeater stations were operating at Cockatoo Island, Dampier, Karratha, Koolan Island, Mount Nameless, Newman, Paraburdoo and Tom Price. Low-power national television stations are planned for Carnamah, Dampier, Esperance, Mingenew, Moora, Port Hedland, Southern Cross and Three Springs. Translator stations (national and commercial) have been approved for Albany, Katanning and Wagin.

### Receiving Licences

Broadcast listeners', television viewers', and combined receiving licences are issued at post offices in accordance with the provisions of the *Broadcasting and Television Act* 1942-1972, which stipulates that, except as prescribed, a person shall not use, maintain or have in his possession a broadcast or television receiver unless there is in force a licence which applies to that receiver. A broadcast listener's licence or a television viewer's licence, whichever is appropriate, authorises the operation of any broadcast receiver or any television receiver, which is in the possession of the holder of a licence, or of a member of his family, at the address specified in the licence and is ordinarily kept at that address; or is installed in a vehicle which is ordinarily in the possession of the holder, or a member of his family, and is ordinarily kept at that address when not in use. A person who has both broadcast and television receivers at the one address is required to take out a combined receiving licence, provision for which was introduced by legislation effective from 1 April 1965.

A licence may be granted free of charge to a blind person over sixteen years of age or to a person or authority conducting a school, and at a concession rate to certain classes of pensioners. Receivers provided for the use of inmates of an institution (including a hospital) are covered by an appropriate licence held by the institution. Persons residing in Zone 2 may also be granted a broadcast listener's licence at a reduced rate. Zone 1 is the areas within 250 miles of specified broadcasting stations and Zone 2 is the remainder of Australia.

Each broadcast or television receiver let out on hire (except under a hire purchase agreement) must be covered by a hirer's licence held by the person or firm from whom the receiver is hired. The keeper of a lodging house (which includes a hotel, motel, boarding house or any other premises where lodging or sleeping accommodation is provided for reward) must take out a lodging house licence for each broadcast or television receiver provided by the proprietor in any room or part of the lodging house occupied or available for occupation by lodgers. From 1 October 1971, where a broadcast and television receiver are kept in the same room of a lodging house, the proprietor may take out a combined receiving licence.

#### RECEIVING LICENCES

Class of licence	Number in force at 30 June—				
	1968	1969	1970	1971	1972
<b>BROADCAST LISTENERS' LICENCES</b>					
Ordinary .....	36,857	33,933	28,961	24,574	23,043
Hirers' .....	12	55	56	106	101
Lodging house .....	196	724	1,447	1,590	1,866
Pensioners' .....	8,900	8,124	7,236	6,168	5,422
<b>Total</b> .....	<b>45,965</b>	<b>42,836</b>	<b>37,700</b>	<b>32,438</b>	<b>30,432</b>
<b>TELEVISION VIEWERS' LICENCES</b>					
Ordinary .....	11,700	11,525	10,923	10,385	10,364
Hirers' .....	16,149	22,230	23,871	27,280	29,655
Lodging house .....	519	778	1,804	1,925	1,684
Pensioners' .....	1,873	1,977	2,115	2,160	2,282
<b>Total</b> .....	<b>30,241</b>	<b>36,510</b>	<b>38,713</b>	<b>41,750</b>	<b>43,985</b>
<b>COMBINED RECEIVING LICENCES</b>					
Ordinary .....	115,867	125,131	134,558	141,815	145,319
Pensioners' .....	18,802	20,948	23,557	25,425	27,527
Free (a) .....	722	718	864	892	837
Lodging house .....	(b)	(b)	(b)	(b)	1,115
<b>Total</b> .....	<b>135,391</b>	<b>146,797</b>	<b>158,979</b>	<b>168,132</b>	<b>174,798</b>

(a) Blind persons and schools.

(b) Combined receiving licences not available for this category prior to 1 October 1971.

Revenue in Western Australia from fees for all receiving licences amounted to \$2,665,963 in 1967-68, \$3,127,068 in 1968-69, \$3,483,474 in 1969-70, \$3,689,269 in 1970-71 and \$4,641,543 in 1971-72.

The annual fee payable at 31 December 1972 for each class of licence is shown in the following table.

**BROADCAST LISTENERS' AND TELEVISION VIEWERS' LICENCES  
ANNUAL FEES: 31 DECEMBER 1972**

Class of licence	Ordinary rate	Pensioner rate
	\$	\$
Broadcast listener's licence and hirer's licence for a broadcast receiver—		
Zone 1 ....	8.00	1.00
Zone 2 ....	4.25	0.70
Lodging house licence for a broadcast receiver—		
Zone 1 ....	8.00	....
Zone 2 ....	4.25	....
Television viewer's licence and hirer's licence for a television receiver ....	19.00	3.00
Lodging house licence for a television receiver ....	19.00	....
Combined receiving licence (a) ....	26.50	4.00

(a) Available to individuals and lodging house keepers.

### Analysis of Programmes

The particulars shown in the following tables have been taken from the Report of the Australian Broadcasting Control Board for the year ended 30 June 1972.

**Broadcasting.** The analysis of broadcasting programmes for Australia as a whole, as shown in the following table, is based on the combined figures from two surveys conducted by the Board in October 1971 and April 1972. In each case programmes of stations in State capital cities were monitored on a sampling basis for one minute in each ten minutes of transmission between 6.00 a.m. and 10.30 p.m. for a full week.

**BROADCASTING STATIONS—ANALYSIS OF PROGRAMMES  
METROPOLITAN STATIONS: AUSTRALIA  
(Per cent)**

Programme category	National (12 stations)	Commercial (25 stations)	All stations (37 stations)
Entertainment—			
Light and popular music ....	24.5	51.3	42.9
The arts (a) ....	22.5	0.1	7.2
Variety ....	1.4	1.4	1.4
Drama ....	3.2	0.3	1.2
Other ....	5.6	6.9	6.4
Total ....	57.2	60.0	59.1
Information and services—			
News ....	12.1	9.8	10.5
Sport ....	3.2	5.8	5.0
Information (b) ....	6.8	1.7	3.3
Religious ....	1.9	1.4	1.6
Social and political ....	13.6	4.0	7.0
Family (c) ....	0.4	1.2	0.9
Educational (d) ....	2.6	....	0.8
Children's ....	2.2	(e)	0.7
Total ....	42.8	23.9	29.8
Advertisements ....	....	16.1	11.1
GRAND TOTAL ....	100.0	100.0	100.0

(a) Serious music and opera; readings of prose and poetry; literary and art criticism. (b) Includes such topics as aspects of science; other countries and peoples; agriculture and other industries. (c) Includes programmes dealing with cooking; house and garden; hobbies; care of pets; health and physical fitness. (d) Programmes designed as an aid to formal teaching; kindergarten sessions. (e) Less than 0.05 per cent.

**Television.** The analysis of television programmes, as shown in the following table, is based on a 25 per cent sample of commercial and national programmes televised during the twelve-month period ended 2 April 1972. Details of commercial television programmes are derived from data supplied regularly by each station to the Board and details of national television programmes are obtained from information supplied by the Australian Broadcasting Commission. For the purpose of the table the national programmes analysed are those of ABV-2 Melbourne as they are considered to be reasonably representative of programmes of the national television service.

# TELEVISION STATIONS—ANALYSIS OF PROGRAMMES: AUSTRALIA

(Per cent)

Programme category	Metropolitan stations			Country stations (a)
	Commercial (b)	National	All stations	Commercial (b)
<b>Drama—</b>				
Serious .....	0.2	0.2	0.2	...
Adventure .....	11.8	5.0	10.1	10.2
Crime and suspense .....	8.5	4.3	7.5	9.6
Domestic and comedy .....	14.7	8.5	13.8	17.2
Western .....	4.3	1.4	3.6	5.3
Miscellaneous .....	13.1	4.8	10.3	11.5
<b>Total .....</b>	<b>52.6</b>	<b>24.2</b>	<b>45.5</b>	<b>53.8</b>
<b>Light entertainment—</b>				
Cartoons .....	6.0	3.6	5.4	3.3
Light music .....	3.0	2.7	2.9	3.2
Personality programmes .....	7.9	0.5	6.1	9.0
Talent programmes .....	1.3	...	0.9	1.8
Variety .....	3.4	2.1	3.1	3.1
<b>Total .....</b>	<b>21.6</b>	<b>8.9</b>	<b>18.4</b>	<b>20.4</b>
<b>Sport .....</b>	<b>6.1</b>	<b>11.6</b>	<b>7.5</b>	<b>5.9</b>
<b>News .....</b>	<b>4.6</b>	<b>7.4</b>	<b>5.3</b>	<b>9.2</b>
<b>Children—</b>				
Kindergarten .....	5.0	15.4	7.6	2.5
Other .....	3.9	3.9	3.9	2.8
<b>Total .....</b>	<b>19.6</b>	<b>38.3</b>	<b>24.3</b>	<b>20.4</b>
<b>Family activities .....</b>	<b>1.9</b>	<b>0.9</b>	<b>1.6</b>	<b>1.3</b>
<b>Information .....</b>	<b>1.6</b>	<b>5.6</b>	<b>2.6</b>	<b>2.0</b>
<b>Current affairs .....</b>	<b>1.1</b>	<b>6.7</b>	<b>2.5</b>	<b>0.7</b>
<b>Political matter .....</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>
<b>Religious matter .....</b>	<b>1.1</b>	<b>1.4</b>	<b>1.2</b>	<b>1.3</b>
<b>The arts .....</b>	<b>...</b>	<b>0.8</b>	<b>0.2</b>	<b>...</b>
<b>Education—</b>				
Formal .....	...	12.8	3.2	...
Other .....	0.5	0.4	0.5	0.1
<b>Total .....</b>	<b>6.2</b>	<b>28.6</b>	<b>11.8</b>	<b>5.4</b>
<b>GRAND TOTAL .....</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

(a) Due to the similarity of programmes for all national stations a separate analysis for country stations is not made.

(b) Excludes time occupied by advertisements. A survey in 1972 showed that, for Melbourne stations, advertisements occupied 15.0 per cent of the total time.

## CHAPTER X—INDUSTRIAL CONDITIONS, EMPLOYMENT AND PRICES

### Part 1—Industrial Conditions

#### INDUSTRIAL AUTHORITIES

##### Commonwealth Authorities

A Commonwealth Court of Conciliation and Arbitration was established under the provisions of the *Commonwealth Conciliation and Arbitration Act 1904*. By an amendment made to the Conciliation and Arbitration Act in 1956 the Commonwealth arbitration system was reorganised by the creation of two separate authorities to deal with matters formerly within the sole jurisdiction of the Court. The amendment had the effect of allocating to a Commonwealth Industrial Court the judicial functions, and to a Commonwealth Conciliation and Arbitration Commission the arbitral functions, previously carried out by the Commonwealth Court of Conciliation and Arbitration.

**Commonwealth Industrial Court.** The Commonwealth Industrial Court, as constituted by the *Conciliation and Arbitration Act 1904-1972*, comprises a Chief Judge and not more than seven other Judges. The Act provides that, except in respect of certain specified matters, the jurisdiction of the Court shall be exercised by not less than three Judges. A single Judge may refer a question of law for the opinion of the Court constituted by not less than three Judges. The Commonwealth Conciliation and Arbitration Commission may also refer a question of law for the opinion of the Court. Appeal from a judgment of the Commonwealth Industrial Court may, in certain circumstances, be made to the High Court of Australia, but only when the High Court grants leave to appeal.

**Commonwealth Conciliation and Arbitration Commission.** The Commonwealth Conciliation and Arbitration Commission, according to the provisions of the *Conciliation and Arbitration Act 1904-1972*, comprises a President and such numbers of Deputy Presidents and of Commissioners 'as are necessary from time to time'. The President and the Deputy Presidents are described as 'Presidential Members' of the Commission. The Act provides that each Commissioner shall be designated either as an Arbitration Commissioner or a Conciliation Commissioner. The powers of the Commission include the prevention or settlement, by conciliation or arbitration, of industrial disputes which extend beyond the limits of any one State, but the Commission is authorised to conciliate or arbitrate in respect of any dispute or industrial matter associated with Commonwealth Government undertakings or projects. The power to make awards or certify agreements concerning standard hours, rates of wages (including a minimum wage), annual leave or long service leave is exercisable only by a Full Bench of the Commission that includes not less than three Presidential Members. The Principal Registry of the Commission is in Melbourne, Victoria, and there is a Deputy Industrial Registrar in each State.

##### Western Australian Authorities

A Court of Arbitration was established in Western Australia in 1901 under the provisions of the *Industrial Conciliation and Arbitration Act, 1900*. The Court comprised a President, a representative of associations of employers and a representative of associations of workers. The Court of Arbitration was replaced, with effect from 1 February 1964, by the Western Australian Industrial Appeal Court and The Western Australian Industrial Commission, authorities constituted in terms of the *Industrial Arbitration Act, 1912-1971*.

**Western Australian Industrial Appeal Court.** The Western Australian Industrial Appeal Court consists of three Judges, one of whom is President of the Court. The President and the other members are nominated by the Chief Justice of Western Australia. Certain of the functions, powers and jurisdiction conferred on the Court may be exercised by any member, on the nomination of the President, sitting or acting alone. An appeal lies to the Court from any decision of The Western Australian Industrial Commission or the Commission in Court Session, but only on the ground that such decision is erroneous in law or is in excess of jurisdiction.

**The Western Australian Industrial Commission.** The Western Australian Industrial Commission consists of a Chief Industrial Commissioner and four other Commissioners. The Act provides that a Commissioner sitting or acting alone constitutes the Commission and may exercise all the powers and jurisdiction of the Commission.

The Commission is empowered to inquire into any industrial matter or industrial dispute in any industry and to make orders or awards fixing the prices for work done by and the rates of wages payable to workers; fixing the number of hours and the times to be worked in order to entitle those workers to the wages so fixed; limiting the hours of piece workers; fixing the rates for overtime, work on holidays, shift work, week-end work and other special work, including allowances as compensation for overtime; determining any industrial matter; and declaring what deduction may be made from the prices or wages of workers for board or residence or board and residence provided for workers and for any customary provisions or payments in kind conceded to such workers.

The Commission in Court Session is constituted by not less than three Commissioners sitting or acting together. Appeals from decisions of a single Commissioner are heard and determined by the Commission in Court Session. Such appeals are restricted to the evidence and matters raised in the proceedings before the single Commissioner.

#### THE WESTERN AUSTRALIAN INDUSTRIAL COMMISSION

Particulars	At 30 June—				
	1968	1969	1970	1971	1972
Awards in force ....	371	374	384	389	396
Industrial agreements in force ....	103	105	103	116	134
Unions of workers—					
Number ....	100	102	100	99	97
Membership ....	129,595	130,518	137,556	149,846	150,910
Unions of employers—					
Number ....	14	13	13	13	13
Membership ....	1,781	1,814	1,830	1,864	1,908

**Western Australian Coal Industry Tribunal.** The Western Australian Coal Industry Tribunal, as constituted under the *Mining Act, 1904-1971*, consists of five members appointed by the Governor. One member is chairman of the Tribunal, and there are two members representing employees, and two representing employers. The Tribunal has power to consider and determine industrial disputes, not extending beyond the limits of the State, and other matters relating to the coal-mining industry.

#### EMPLOYER ORGANISATIONS

The first employers' organisation in Western Australia was the West Australian Chamber of Commerce which was founded in 1853 and was replaced by the Fremantle Chamber of Commerce in 1873. The Perth Chamber of Commerce (Incorporated) was founded in 1890. Other Chambers of Commerce operate in various parts of the State.

The West Australian Chamber of Manufactures (Incorporated) commenced in 1890, but disbanded and was founded in its present form in 1899.

The Western Australian Employers' Federation (Incorporated) was formed in 1913 to handle labour relations for all private industry throughout the State. It is the major employers' organisation handling labour relations issues which are no longer dealt with

by the Chambers of Commerce or the Chamber of Manufactures. A federation of 62 affiliated Associations, comprising more than 20,000 employers, the Employers' Federation had also more than 6,000 individual members at 30 June 1972.

Its activities are controlled by a Council which contains a representative of each member Association and representatives of several major industries where no Association exists. The subscribing members elect a Finance Board to control the Federation's property and finances.

The Federation represents employers in all aspects of the negotiation of industrial awards and agreements, the settlement of industrial disputes, including arbitration and in relationships directly with the trade unions. It is affiliated with the Australian Council of Employers' Federations and through it has affiliations with the Organisation of Employers' Federations and Employers in Developing Countries and with the International Organisation of Employers.

## EMPLOYEE ORGANISATIONS

The trade unions in Western Australia cover all forms of occupations from the unskilled worker to the professional man. The great majority of union organisations are national in character with State branches registered with both the Commonwealth and State industrial authorities.

Major organisations include the Trades and Labor Council of Western Australia, the State branches of the Australian Council of Salaried and Professional Associations, the Australian Public Service Federation, and the Council of Commonwealth Public Service Organisations. These four groups cover most of the wage and salary earners employed in the private and governmental sectors of industry and commerce.

The Trades and Labor Council of Western Australia, which is the State branch of the Australian Council of Trade Unions (A.C.T.U.), has provincial councils at Albany, Geraldton, Kalgoorlie and Port Hedland. At 30 June 1972 it had eighty-six State resident unions affiliated to it with a membership of approximately 96,000.

The Trades and Labor Council, representing the largest group of wage and salary earners, frequently acts on behalf of employees in matters before the Western Australian industrial authorities such as wages, hours, holidays, long service leave, and other associated matters of a standard or uniform nature.

The following table gives particulars of the number of trade unions in Western Australia and the number of members at the end of December of the years 1967 to 1971. The table also shows the estimated proportion of trade union members to total wage and salary earners in employment. As estimates of numbers of wage and salary earners in employment do not include employees engaged in agriculture or in private domestic service (see letterpress *Estimates of Employment* on page 504), the percentages have been calculated on figures obtained by adding to the estimates for December in each year the number of employees in agriculture and private domestic service recorded at the 1966 Population Census.

TRADE UNIONS—NUMBER AND MEMBERSHIP

Date	Number of unions	Number of members ('000)			Proportion of total wage and salary earners (a) (per cent)		
		Males	Females	Persons	Males	Females	Persons
End of December—							
1967	155	117.4	34.9	152.3	58	39	52
1968	157	123.1	37.8	160.9	57	39	52
1969	153	122.8	39.3	162.2	55	37	49
1970	155	127.0	41.6	168.6	53	36	48
1971	154	133.5	44.8	178.3	55	37	49

(a) Approximate; see letterpress immediately preceding table.

The following table shows the numbers and membership of trade unions in Western Australia in broad industry groups. The table does not give a precise classification of trade union members according to industry, because in cases where the members of a union are employed in a number of industries they have been classified to the predominant industry for the union concerned.

#### TRADE UNIONS—NUMBER AND MEMBERSHIP: INDUSTRY GROUPS

Date	Manufacturing	Building and construction	Transport	Public authority n.e.i., etc. (a)	Other (b)	All groups
NUMBER OF UNIONS						
End of December—						
1967	34	8	20	43	50	155
1968	33	7	20	46	51	157
1969	32	6	20	44	51	153
1970	31	7	23	44	50	155
1971	31	7	23	43	50	154
NUMBER OF MEMBERS ('000)						
End of December—						
1967	33.5	13.9	19.3	33.1	52.5	152.3
1968	34.3	17.9	20.0	35.0	53.9	160.9
1969	37.8	12.8	19.6	36.8	55.2	162.2
1970	40.9	13.6	18.5	38.7	56.9	168.6
1971	40.9	12.9	19.0	41.6	63.9	178.3

n.e.i. denotes 'not elsewhere included'.

(a) Includes *Communication and municipal, etc.* (b) Includes *Agriculture, etc.; Mining and quarrying; Banking, insurance and clerical; Wholesale and retail trade; Amusement, hotels, personal service, etc.; and Community and business services.*

#### APPRENTICESHIP

The first registration of an apprentice in Western Australia was made on 25 May 1903 to the trade of book binding. At 31 December 1971 the total number of apprentices registered in this State was 11,538 in a wide variety of trades as given in the table on page 479.

Apprenticeships in this State are provided for and are subject to awards of The Western Australian Industrial Commission and registered industrial agreements. The Western Australian Industrial Commission functions by authority of the *Industrial Arbitration Act, 1912-1971*.

By definition, an apprentice is a person of either sex and of any age (other than the minimum age for which compulsory school attendance is required) who is apprenticed to learn or to be taught any industry, trade, craft or calling to which the Apprenticeship Regulations of the Commission apply. The Commission controls all industrial aspects of apprenticeship while the Technical Education Division of the Education Department provides the technical training as prescribed by the various awards of the Commission and by industrial agreements.

The Western Australian Apprenticeship Advisory Council, which comprises two representatives each from employers, employees and the State Government, with the Industrial Registrar as Chairman, advises the Minister for Labour, the Minister for Education and the Commission on matters of policy in respect of apprenticeship.

The Council assigns to Apprenticeship Advisory Boards such matters of an advisory nature relating to its trade or group of trades as considered necessary. Recommendations made to the Council from a Board may, after consideration and approval by the Council, be submitted to the Commission or Director-General of Education with a view to their implementation. The Boards consist of representatives from employers and employees, together with a representative from both the Department of Labour and Technical

Education Division of the Education Department. The Administrative Officer of the Council is Chairman of all Apprenticeship Advisory Boards, thereby establishing a permanent liaison between the Boards and the Council.

A major achievement has been the general acceptance by most trades and by the consent of all parties involved in apprenticeship agreements of the Council's policy of shortened terms on grounds of educational achievement and vocational aptitude. The only major industry currently not participating in this policy is the printing trade.

Technical school attendance is compulsory when the Technical Education Division has suitable classes available in schools within a twelve-mile radius of the apprentice's home. Block release training was commenced in 1969 in the carpentry and joinery trade and the painting trade; in other cases day release training is prescribed. In the building trade compulsory attendance for intensive training is prescribed for country apprentices and correspondence lessons are available in most other trades.

Federal awards are of much less significance than State awards in apprenticeship matters in Western Australia. The total numbers of apprentices employed in this State at 31 December 1971 under the provisions of the Commonwealth *Conciliation and Arbitration Act* 1904-1972 and the *Public Service Act* 1922-1972 were 206 and 67, respectively. Section 52 of the Commonwealth Conciliation and Arbitration Act enables the Commonwealth Conciliation and Arbitration Commission to issue awards covering the rates of pay and conditions of employment of apprentices. In practice, however, the Commonwealth tends to delegate or refer the authority in such matters to the State.

As a result, the Industrial Registrar of The Western Australian Industrial Commission registers agreements involving apprentices and, on the completion of the term of apprenticeship, issues a Final Certificate, provided the apprentice has met the statutory requirements of the State in respect of examinations conducted by The Western Australian Industrial Commission and the Technical Education Division of the Education Department.

#### APPRENTICESHIP—NUMBER OF EFFECTIVE REGISTRATIONS

Trade	At 31 December—			Trade	At 31 December—		
	1969	1970	1971		1969	1970	1971
State awards—				State awards— <i>continued</i>			
Baking .....	73	78	82	Optical .....	13	11	17
Bootmaking .....	4	7	9	Pastry cooking .....	34	42	42
Building—				Printing—			
Carpentry and joinery .....	1,009	1,058	1,028	Composing .....	119	131	144
Bricklaying .....	135	153	146	Letterpress machining .....	31	43	43
Painting and signwriting .....	349	339	337	Other .....	88	101	91
Plastering .....	102	110	100	Saddlery and leather working .....	3	4	2
Plumbing .....	531	578	601	Scientific instrument making .....	55	61	65
Other .....	7	6	6	Sheetmetal working .....	264	240	273
Butchering and smallgoods .....	494	477	472	Timber machining .....	53	45	38
Dental technician .....	33	40	39	Vehicle building—			
Electrical—				Bodymaking .....	134	122	110
Auto-electrical fitting .....	101	104	117	Panel beating .....	389	424	455
Electrical fitting .....	573	622	638	Spray painting .....	195	228	241
Electrical installing .....	573	662	695	Trimming .....	24	29	38
Radio and television servicing .....	82	80	93	Total, State awards .....	10,546	10,949	11,265
Furniture—				Commonwealth awards—			
Cabinetmaking .....	321	353	348	Aircraft engineering .....	51	40	23
Upholstery .....	42	35	40	Bootmaking .....	22	16	9
Woodmachining .....	78	91	81	Building trades .....	13	1	1
Other .....	50	55	50	Metal trades .....	8	8	4
Glazing .....	46	48	57	Printing—			
Hairdressing—				Composing .....	59	50	52
Men's .....	96	92	77	Letterpress machining .....	72	64	62
Ladies' .....	1,044	1,048	1,001	Other .....	26	17	22
Jewellery and watchmaking .....	28	27	26	Shipwrighting .....	37	35	33
Metal trades—				Total, Commonwealth awards .....	280	231	206
Boilermaking .....	575	561	622	Commonwealth Government Departments .....	52	71	67
Fitting and turning .....	537	531	537	GRAND TOTAL .....	10,878	11,251	11,538
Fitting .....	264	241	282				
Turning .....	75	61	61				
Motor mechanic .....	1,401	1,487	1,572				
Moulding .....	50	47	49				
Refrigeration fitting .....	106	130	143				
Welding .....	173	165	166				
Other .....	192	182	231				

In the previous table, the total number of apprentices registered in this State at 31 December is given for each of the years 1969 to 1971.

The next table shows the number of new registrations made to various trades during each of the three years.

#### APPRENTICESHIP—REGISTRATIONS TO VARIOUS TRADES

Trade	1969	1970	1971	Trade	1969	1970	1971
State awards—				State awards— <i>continued</i>			
Baking ....	20	23	28	Optical ....	4	3	8
Bootmaking ....	1	3	3	Pastry cooking ....	10	16	12
Building—				Printing—			
Carpentry and joinery ....	280	281	225	Composing ....	41	33	30
Bricklaying ....	48	47	25	Letterpress machining ....	8	15	11
Painting and signwriting ....	131	90	86	Other ....	22	33	25
Plastering ....	34	52	17	Saddlery and leather working ....	....	1	1
Plumbing ....	163	164	145	Scientific instrument making ....	16	24	16
Other ....	1	....	2	Sheetmetal working ....	74	72	83
Butchering and smallgoods ....	153	120	122	Timber machining ....	9	9	7
Dental technician ....	10	10	8	Vehicle building—			
Electrical—				Bodymaking ....	34	31	26
Auto-electrical fitting ....	23	33	49	Panel beating ....	113	120	152
Electrical fitting ....	158	187	164	Spray painting ....	53	74	76
Electrical installing ....	195	232	159	Trimming ....	9	5	16
Radio and television servicing	23	23	27				
Furniture—				Total, State awards ....	3,064	3,180	3,111
Cabinetmaking ....	112	106	83	Commonwealth awards—			
Upholstery ....	15	10	16	Aircraft engineering ....	6	4	1
Woodmachining ....	25	31	20	Bootmaking ....	6	6	1
Other ....	11	23	11	Building trades ....	....	1	....
Glazing ....	11	12	16	Metal trades ....	11	....	2
Hairdressing—				Printing—			
Men's ....	34	25	22	Composing ....	8	13	14
Ladies' ....	323	317	302	Letterpress machining ....	22	8	11
Jewellery and watchmaking ....	8	4	5	Other ....	10	3	6
Metal trades—				Shipwrighting ....	10	7	3
Boilermaking ....	147	163	210				
Fitting and turning ....	146	136	146	Total, Commonwealth awards ....	73	42	38
Fitting ....	64	53	99	Commonwealth Government Departments ....	22	37	14
Turning ....	18	12	18				
Motor mechanic ....	368	461	453	GRAND TOTAL ....	3,159	3,259	3,163
Moulding ....	15	9	23				
Refrigeration fitting ....	40	33	31				
Welding ....	45	33	44				
Other ....	49	51	89				

#### INCIDENCE OF INDUSTRIAL AWARDS

The table below indicates the approximate proportions of Western Australian employees covered by awards, determinations and registered industrial agreements under Commonwealth and State jurisdictions. The proportions not so covered (including those working under unregistered industrial agreements) are also shown. The figures summarise part of the data obtained from surveys of the Australian wage structure in April 1954, May 1963 and May 1968.

The estimates shown in the table were derived from returns collected from:

- (i) a stratified random sample of most private employers subject to Pay-roll Tax;
- (ii) all public hospitals and marketing boards;
- (iii) all Commonwealth and State government departments and semi-government authorities; and
- (iv) a stratified random sample of local government bodies.

Because of coverage difficulties, certain employees were excluded from the surveys. For further information relating to the survey of May 1968 and for statistics in greater detail, the reader is referred to the annual *Labour Report* published by the Commonwealth Statistician, Canberra.

For a number of reasons, the results of the three surveys are not strictly comparable, and the statistics presented in the following table should therefore be regarded as providing only a broad indication of trends.

The term 'awards, etc.' as used in the table means awards or determinations of, and agreements registered with, Commonwealth or State industrial authorities. Changes in the proportions of employees reported as affected by Commonwealth awards and by State

awards reflect changes in industry and occupational structure, including the creation of new industries; changes in the coverage of individual Commonwealth and State awards; and the creation of new awards relating to employees not previously affected by awards.

PROPORTION OF EMPLOYEES AFFECTED BY AWARDS, ETC. (a)  
(per cent)

Particulars	1954—April			1963—May			1968—May		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
Employees affected by awards, etc.—									
Commonwealth .....	12.5	18.7	13.9	13.3	14.8	13.6	16.9	15.7	16.6
State .....	77.1	71.8	75.9	76.5	74.4	76.0	70.7	76.1	72.1
Other employees .....	10.4	9.5	10.2	10.2	10.8	10.4	12.4	8.2	11.3
Total .....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Awards or determinations of, and agreements registered with, Commonwealth or State industrial authorities.

## INDUSTRIAL DISPUTES

Statistics of industrial disputes are compiled by the Commonwealth Statistician from data obtained from the following sources: direct collections from employers and trade unions concerning individual disputes; reports from government departments and authorities; reports of State and Commonwealth industrial authorities; and information contained in trade journals, employer and trade union publications, and newspaper reports.

## INDUSTRIAL DISPUTES (a)

Year	Number of disputes	Number of workers involved			Number of working days lost	Estimated loss in wages
		Directly	Indirectly (b)	Total		
1967 .....	26	'000 5.0	'000 (c)	'000 5.1	'000 6.0	\$'000 62.6
1968 .....	70	18.3	0.4	18.7	21.8	281.8
1969 .....	104	57.0	2.1	59.1	101.4	1,284.2
1970 .....	125	44.4	2.1	46.5	141.1	1,963.3
1971 .....	132	30.8	5.0	35.8	69.4	1,166.4

(a) Excludes disputes involving cessation of work of less than 10 man-days. (b) Persons thrown out of work at the establishments where the stoppages occurred, but not themselves parties to the dispute. (c) Less than 50.

## INDUSTRIAL DISPUTES (a)—INDUSTRY GROUPS: 1971

Industry group	Number of disputes	Number of workers involved			Number of working days lost	Estimated loss in wages
		Directly	Indirectly (b)	Total		
Agriculture, grazing, etc. ....	.....	'000	'000	'000	'000	\$'000
Coal mining .....	.....	.....	.....	.....	.....	.....
Other mining and quarrying .....	29	7.3	2.5	9.8	21.9	425.8
Manufacturing—						
Engineering, metals, vehicles, etc. ....	22	7.8	(c)	7.8	18.9	312.9
Textiles, clothing and footwear .....	1	0.1	.....	0.1	0.1	1.5
Food, drink and tobacco .....	2	0.3	.....	0.3	0.2	2.6
Sawmilling, furniture, etc. ....	.....	.....	.....	.....	.....	.....
Paper, printing, etc. ....	.....	.....	.....	.....	.....	.....
Other manufacturing .....	6	2.2	0.2	2.4	4.9	65.3
Building and construction .....	31	4.8	0.4	5.2	12.9	217.5
Railway services .....	1	1.0	1.9	2.9	5.2	64.6
Road and air transport .....	2	0.2	.....	0.2	0.2	2.7
Shipping .....	11	0.8	(c)	0.8	1.3	21.4
Stevedoring .....	23	5.4	.....	5.4	3.6	49.9
Amusement, hotels, personal service, etc. ....	1	0.6	.....	0.6	0.1	1.0
Other industries (d) .....	3	0.4	.....	0.4	0.1	1.3
Total .....	132	30.8	5.0	35.8	69.4	1,166.4

(a) Excludes disputes involving cessation of work of less than 10 man-days. (b) Persons thrown out of work at the establishments where the stoppages occurred, but not themselves parties to the dispute. (c) Less than 50. (d) Includes Communication; Finance and property; Wholesale and retail trade; Public authority (n.e.t.); and Community and business services.

In the two previous tables details of industrial disputes in Western Australia during the years 1967 to 1971 are given, together with an analysis, according to industry group, of disputes which were in progress in 1971. The statistics exclude disputes involving stoppages of work of less than ten man-days in the establishment where the stoppage occurred. Effects on other establishments resulting from lack of materials, disruption of transport services, power cuts, etc. are not measured by these statistics.

Particulars of all disputes in progress during the year are included in the annual figures, whether the dispute commenced in that year or was in progress at the beginning of the year. Consequently, details of 'the number of disputes' and 'workers involved' in disputes which commenced in any year, and were still in progress during the following year, are included in the figures for both years.

Particulars of some stoppages (e.g. those involving a large number of establishments) may be estimated and the statistics therefore should be regarded as giving a broad measure of the extent of stoppages of work (as defined).

### INDUSTRIAL DISPUTES (a) ACCORDING TO DURATION—1971

Duration (working days)	Mining	Manufacturing	Building and construction	Stevedoring	Other industries	All industries
NUMBER OF DISPUTES (a)						
1 day and less	10	16	14	17	13	70
2 days and more than 1 day	7	3	4	1	4	19
3 days and more than 2 days	8	2	4	2	....	16
Over 3 days and less than 5 days	2	4	6	2	....	14
5 days and less than 10 days	2	4	1	1	....	8
10 days and less than 20 days	....	1	1	....	1	3
20 days and less than 40 days	....	....	1	....	....	1
40 days and over	....	1	....	....	....	1
Total	29	31	31	23	18	132

### WORKERS INVOLVED (b) ('000)

1 day and less	1.0	7.5	2.2	5.1	1.8	17.6
2 days and more than 1 day	3.0	0.4	0.7	(c)	3.0	7.0
3 days and more than 2 days	4.0	1.6	0.3	(c)	....	6.0
Over 3 days and less than 5 days	1.4	0.3	1.7	0.1	....	3.4
5 days and less than 10 days	0.5	0.6	0.2	0.1	....	1.3
10 days and less than 20 days	....	(c)	0.1	....	(c)	0.2
20 days and less than 40 days	....	....	0.1	....	....	0.1
40 days and over	....	0.2	....	....	....	0.2
Total	9.8	10.6	5.2	5.4	4.8	35.8

### WORKING DAYS LOST ('000 MAN-DAYS)

1 day and less	0.6	4.8	1.3	2.3	0.8	9.7
2 days and more than 1 day	4.1	0.6	0.8	0.1	5.4	11.0
3 days and more than 2 days	9.7	4.1	0.8	0.1	....	14.6
Over 3 days and less than 5 days	4.8	1.1	6.2	0.3	....	12.4
5 days and less than 10 days	2.7	3.3	1.2	0.9	....	8.1
10 days and less than 20 days	....	0.6	1.3	....	0.7	2.6
20 days and less than 40 days	....	....	1.4	....	....	1.4
40 days and over	....	9.7	....	....	....	9.7
Total	21.9	24.1	12.9	3.6	6.9	69.4

### ESTIMATED LOSS IN WAGES (\$'000)

1 day and less	11.3	70.3	23.5	30.4	11.5	147.0
2 days and more than 1 day	83.7	8.1	10.7	0.7	67.3	170.6
3 days and more than 2 days	196.1	53.2	16.2	0.9	....	266.4
Over 3 days and less than 5 days	92.1	17.4	106.8	3.7	....	220.0
5 days and less than 10 days	42.6	45.3	20.0	14.2	....	122.2
10 days and less than 20 days	....	9.0	16.5	....	12.1	37.6
20 days and less than 40 days	....	....	23.7	....	....	23.7
40 days and over	....	179.0	....	....	....	179.0
Total	425.8	382.3	217.5	49.9	91.0	1,166.4

(a) Excludes disputes involving cessation of work of less than 10 man-days. (b) Includes workers indirectly involved, i.e. persons thrown out of work at the establishments where the stoppages occurred, but not themselves parties to the dispute. (c) Less than 50.

## WAGES AND EARNINGS

**The Basic Wage**

**Commonwealth Basic Wage.** The *Western Australian Year Book*, No. 7—1968 and earlier issues contain an account of the development of the Commonwealth basic wage from its inception until it was abandoned in 1967. In a unanimous judgment given on 5 June 1967 the Commonwealth Conciliation and Arbitration Commission announced 'the elimination of basic wages and margins and the introduction of total wages'. An increase of \$1 per week was awarded to all adult employees and the judgment stated that 'total wages will be arrived at by adding an amount of \$1 per week to the weekly award wages of all adult males and females . . .' and further, that the Commission had 'on this occasion deliberately awarded the same increase to adult females and adult males'. The increase was declared to become operative from the beginning of the first pay-period commencing on or after 1 July 1967.

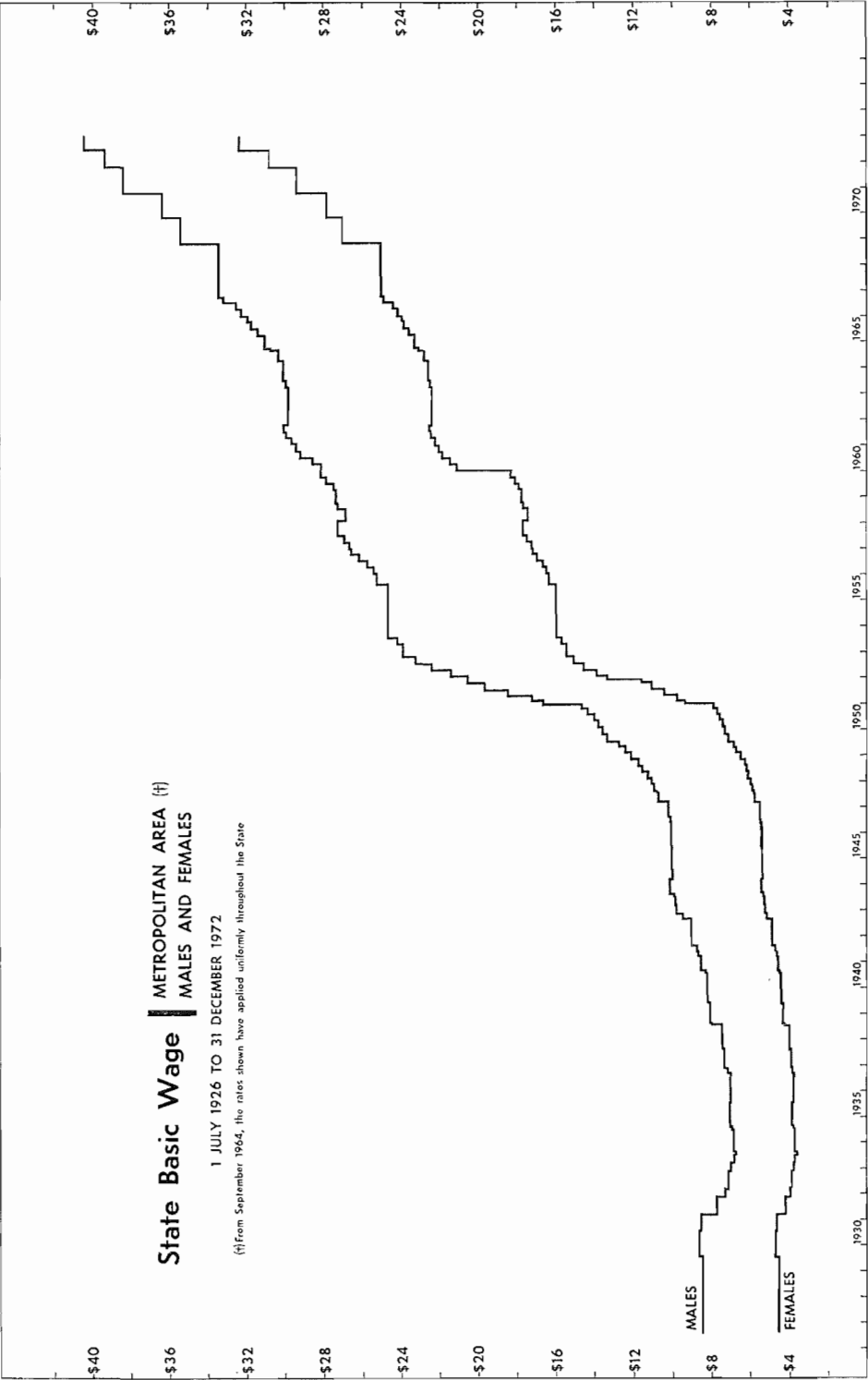
A table showing Commonwealth basic wage rates at 31 December of each year from 1923 to 1966 is given in the *Statistical Summary from 1829* appearing in the *Western Australian Year Book*, No. 9—1970 and earlier issues.

**State Basic Wage.** Reference is made in the *Western Australian Year Book*, No. 7—1968 and earlier issues to the work of the former Court of Arbitration in the field of wage determination from the declaration of the first State basic wage in 1926.

The Western Australian Industrial Commission came into operation on 1 February 1964, replacing the Court of Arbitration as the authority responsible for State basic wage determinations in Western Australia. The *Industrial Arbitration Act, 1912-1971* requires that such determinations shall be made by the Commission in Court Session. The Commission so constituted made its first adjustment to the basic wage on 27 April 1964, when it prescribed increased rates to apply on and from that date. As a result of this decision, the weekly rates payable to adult males became £15 4s. 2d. (\$30.42) in the Metropolitan Area, £15 2s. 7d. (\$30.26) in the South-West Land Division, and £14 16s. 8d. (\$29.67) in Goldfields Areas and other parts of the State. (For purposes of the basic wage, the 'Metropolitan Area' was the area comprised within a radius of fifteen miles from the General Post Office, Perth; the 'South-West Land Division' was the area so described in the Land Act, but excluding the 'Metropolitan Area'; and 'Goldfields Areas and other parts of the State' comprised the area outside the South-West Land Division. Reference to the South-West Land Division will be found on page 134.)

On 15 June 1964 the Trades and Labor Council of Western Australia, acting on behalf of registered unions, addressed to the Commission a request for an inquiry into the basic wage. A preliminary hearing was held on 3 July to consider questions of procedure, representation and related matters. The general inquiry began before the Commission in Court Session on 22 July and was completed on 14 August. Representatives of the unions and of the Western Australian Employers' Federation (Incorporated) made extensive submissions and the Crown Counsel, on behalf of the State Government, intervened in the public interest, as authorised under section 68 of the Industrial Arbitration Act. Judgment was given on 22 September. The Commission was unanimous in its conclusion that one basic wage should apply to the whole State, but was divided as to the amount of the wage. The majority view was that a weekly wage of £15 8s. (\$30.80) should be declared as appropriate to adult male workers, and an order was issued accordingly prescribing this amount for males and an amount of £11 11s. (\$23.10) for females, the rates to operate on and from 22 September 1964 and to apply uniformly throughout the State.

The *Industrial Arbitration Act Amendment Act, 1966*, which came into operation on 23 December 1966, provided that the rates which were current immediately prior to the date of commencement of the Act should remain unaltered until exceeded by the basic wage for the six capital cities as declared by the Commonwealth Conciliation and Arbitration Commission, and that subsequent alterations should be made in accordance with variations of that wage. (At 23 December 1966 the State basic wage for adult males was



\$33·50 per week and for adult females, \$25·13 per week. The corresponding Commonwealth basic wage rates for the six capital cities at the same date were \$32·80 and \$24·60.)

Reference is made in the preceding section *Commonwealth Basic Wage* to the decision given by the Commonwealth Conciliation and Arbitration Commission on 5 June 1967, when it announced the elimination of basic wages and margins from its awards, and the introduction of total wages to operate from the beginning of the first pay-period commencing on or after 1 July 1967. This decision provided also that total wages for adult males and adult females were to be increased by \$1 per week from the same date. Following this decision a number of unions in Western Australia applied to The Western Australian Industrial Commission seeking an increase of \$1 per week in margins for adult males and adult females, with proportionate increases for junior workers and apprentices. The Commission delivered its judgment on 27 June 1967. The terms of this decision were that the minimum weekly wage payable to adult male workers under certain awards be increased from \$36·55 to \$37·55; 'that the wage rates for adult workers not in receipt of the "minimum wage" be increased by 60 cents per week; and that other wage rates be adjusted as if the basic wage for males and the basic wage for females had been increased by that amount'. These increases were declared to operate from the beginning of the first pay-period commencing on or after 1 July 1967.

A further increase of \$1·35 per week for adult males and adult females was granted by the Commission in October 1968 to operate from the beginning of the first pay-period commencing on or after 25 October 1968.

The *Industrial Arbitration Act Amendment Act, 1968*, operative from 22 November 1968, restores to The Western Australian Industrial Commission the power to declare a basic wage, which had been removed by the amending Act of 1966. The 1968 amendment provides that the Commission in Court Session may at any time and from time to time, by order, '(a) determine and declare a basic wage for male workers; (b) determine and declare a basic wage for female workers; and (c) vary any basic wage for the time being in force, and any such basic wage so determined and declared or so varied shall be for all purposes, the basic wage for male workers or female workers throughout the State'.

The Act defines the term 'basic wage' as 'that wage or that part of a wage which in the opinion of the Commission, is just and reasonable for a worker to whom it applies, without regard to the circumstances pertaining to the work upon which, or the industry in which, such worker is employed'. In determining a basic wage the Commission is required by the Act to take into consideration the amount that it considers sufficient to enable the average worker to whom that basic wage shall apply to live in reasonable comfort. Although the Commission must also consider the economic capacity of industry, it may not reduce the wage to a level below that required for the maintenance of this standard of 'reasonable comfort'.

The Act prescribed basic wage rates of \$35·45 per week for adult male workers and \$27·08 per week for adult female workers, to apply on and from the date of commencement of the Act (22 November 1968). These amounts comprise the sum of the basic weekly wage rates of \$33·50 for males and \$25·13 for females, operative from 24 October 1966 (before the Commission's power to determine basic wages was removed by the 1966 amendment to the Act), and the subsequent increases of 60 cents per week granted in June 1967 and \$1·35 per week in October 1968.

The Commission is required to review the basic wage, or any variation of the wage, not later than twelve months from the date on which the wage (or variation) came into operation. It is provided by the Act that any variation shall take effect 'only after the expiration of such twelve months, unless in the opinion of the Commission there are special reasons existing in the circumstances of any particular case and it is just and equitable to otherwise determine'.

On 21 November 1969, following the annual review required under the Act, the Commission increased the basic wage for adult males by \$1 per week and for adult

females by 80 cents per week, with effect from the beginning of the first pay-period commencing on or after 24 November 1969.

On 3 August 1970, The Western Australian Industrial Commission began hearing an application by the Trades and Labor Council of Western Australia for an increase in the basic wage to \$48.35 per week for adult males and \$37.00 per week for adult females. The Council's claim was later amended to seek a basic wage of \$61.61 for males and \$47.12 for females, representing increases of \$25.16 and \$19.24 on the rates then current. The hearing of submissions and replies was completed on 7 September and the Commission announced its decision on 19 October.

As a result of the decision the basic wage for adult males became \$38.45 per week and for adult females \$29.40 per week, the new rates to operate from 26 October 1970.

The Commission also announced its intention 'to prescribe in such awards and industrial agreements as it appears proper so to do, a minimum wage for adult males of \$49.00 per week', operative from 26 October 1970.

Further, the Commission stated its intention 'to invite applications to include in such awards and industrial agreements as it may appear proper and appropriate so to do, a provision which will ensure to each employee a minimum payment 10 per cent in excess of the sum of the basic wage and margin prescribed for his particular class of work'.

The following table shows variations, from 22 September 1964, in the State basic wage rates payable to adult male and female workers employed under State industrial awards or registered agreements, or in accordance with the provisions of the Factories and Shops Act.

A similar table showing variations in the rates during the period from 29 January 1951 appears in *Statistics of Western Australia—Labour and Prices*. A table showing rates applying at 31 December of each year from 1926 is given in the *Statistical Summary from 1829* following this Chapter.

STATE BASIC WAGE—ADULT WEEKLY RATES  
(\$)

Date of operation	Males	Females	Date of operation	Males	Females
1964—22 September ....	30.80	23.10	1966— 2 August ....	33.26	24.95
26 October ....	31.12	23.34	24 October (a) ....	33.50	25.13
1965—26 April ....	31.47	23.60	1968—22 November (b) ....	35.45	27.08
26 July ....	31.78	23.84	1969—24 November ....	36.45	27.88
16 November ....	31.96	23.97	1970—26 October ....	38.45	29.40
1966—25 January ....	32.38	24.28	1971—26 October ....	39.45	30.90
2 May ....	32.65	24.49	1972—26 June ....	40.45	32.40

(a) See letterpress on page 485.  
*Act, 1968.*

(b) Rates prescribed under the provisions of the *Industrial Arbitration Act Amendment*

### Equal Pay for Male and Female Workers

**State Awards.** The *Industrial Arbitration Act, 1912-1971* requires The Western Australian Industrial Commission, on application, to insert in awards provision for equal pay for male and female workers performing work of the same or a like nature and of equal value.

**Commonwealth Awards.** Two benches of the Commonwealth Conciliation and Arbitration Commission sat jointly from 25 February to 22 May 1969 to take evidence and hear argument on trade union claims for equal pay between the sexes. Both benches reached a common conclusion and on 19 June 1969 published their decision and reasons for their decision. The Commission stated it was prepared to implement the principle of equal pay for equal work by introducing into Commonwealth awards and determinations the principles contained in State Acts on equal pay. It decided that no increases should be granted to adult females without an examination of the work done and that implementation of equal pay should be spread over a period so that, as from 1 January 1970, implementation would be the same as that under South Australian, Western Australian and Tasmanian Acts.

### Minimum Wage Rates

The basic wage, as the term implies, establishes a 'base' to which additions may be made to provide rates actually payable in certain industries and occupations and in particular areas. Minimum rates, incorporating these additional payments, may be prescribed by awards of The Western Australian Industrial Commission, or may be negotiated by industrial agreement. These agreements are registered with the Commission and are binding upon the parties. The additions made to the basic wage rate take the form of 'margins' and 'loadings'. Margins are amounts awarded to particular classifications of employees for features attaching to their work, such as skill, experience, arduousness and other like factors. Loadings are amounts awarded for various kinds of disabilities associated with the performance of work, or to meet particular circumstances. They include payments such as industry loadings and other general loadings prescribed in awards, determinations or agreements for the occupation concerned.

Awards of the Commonwealth Conciliation and Arbitration Commission take cognisance of particular features or circumstances such as those mentioned above but no longer contain identifiable components in the form of basic wage, margins, and loadings (see letterpress *Commonwealth Basic Wage* on page 483).

In its decision of 8 July 1966 in the Basic Wage, Margins and Total Wages Cases of 1966, the Commonwealth Conciliation and Arbitration Commission announced that it intended to grant relief to low-wage earners by inserting a provision in awards prescribing a minimum wage. The provisions inserted in the awards state that no adult male employee shall be paid at less than the prescribed minimum rates as ordinary rates of pay in respect of the ordinary hours of work prescribed in the award. The minimum weekly wage rates prescribed were the appropriate basic wages plus \$3.75 per week. As a result of this decision the minimum weekly wage as prescribed in Commonwealth awards for adult male workers in Perth became \$36.55, with effect from the beginning of the first pay-period commencing on or after 11 July 1966.

Reference is made on pages 485 and 486 to minimum wage rates prescribed under awards of The Western Australian Industrial Commission.

The following table shows variations in the minimum weekly wage rates applicable to adult males under Commonwealth and State awards.

MINIMUM WEEKLY WAGE RATES—ADULT MALES  
COMMONWEALTH AND STATE AWARDS  
(\$)

Commonwealth awards		State awards	
Perth		Western Australia	
Date of operation (a)	Amount	Date of operation	Amount
1966—11 July ....	36.55	1967— 5 April (a) ....	36.55
1967— 1 July ....	37.55	1967— 1 July (a) ....	37.55
1968—25 October ....	38.90	1968—25 October (a) ....	38.90
1969—19 December ....	42.40	1969—19 December (a) ....	42.40
1971— 1 January ....	46.40	1970—26 October ....	49.00
1972—19 May ....	51.10	1971—26 October ....	51.50
		1972—26 June ....	53.50

(a) Rates operative from beginning of first pay-period commencing on or after the date shown.

The statistics shown in the following table, which refers to Western Australian experience, relate generally to wages and hours prescribed in awards or determinations of the Commonwealth and State industrial authorities or in agreements registered with them.

The minimum wage rates and index numbers shown in the table embrace a representative range of occupations and are based on the occupation and industry structures in Australia in 1954. The weekly wage rates given in the table, and used in the compilation of the indexes, represent the lowest rates payable for a full week's work (excluding overtime), as prescribed in representative industrial awards, determinations and agreements.

The hourly wage rates are obtained by relating the weekly wage rates and the weekly hours of work prescribed in awards, etc. The rural industries are excluded from the table, because of coverage difficulties.

Because the indexes are designed to measure movements in prescribed minimum rates of 'wages' as distinct from 'salaries', those awards, determinations and agreements which relate solely or mainly to salary-earners are excluded.

The wage rates shown should not be regarded as actual current averages, but as indexes expressed in money terms, indicative of trends.

A more detailed description of the minimum wage rates index and more extensive tables are published by the Commonwealth Statistician in the monthly bulletin *Wage Rates and Earnings*.

A table showing minimum rates of wages payable in a selection of occupations in Western Australia at 30 June 1971 appears in *Statistics of Western Australia—Labour and Prices: 1971* (pages 5-7).

#### WEIGHTED AVERAGE MINIMUM WEEKLY AND HOURLY WAGE RATES

Date	Weekly wage rates		Hourly wage rates		Index numbers (a)			
	Adult males	Adult females (b)	Adult males (c)	Adult females (b)	Weekly wage rates		Hourly wage rates	
					Males	Females (b)	Males (c)	Females (b)
End of June—	\$	\$	cents	cents				
1968 .....	45.61	32.55	114.08	81.82	161.5	163.5	161.2	163.1
1969 .....	48.53	34.66	121.32	87.12	171.8	174.1	171.5	173.6
1970 .....	51.09	37.14	127.56	93.35	180.9	186.5	180.3	186.1
1971 .....	*58.07	*41.61	*145.24	*104.60	*205.6	*209.0	*205.3	*208.5
1972 (d) .....	63.94	49.02	159.81	123.23	226.4	246.3	225.9	245.6

(a) Base of series : weighted average weekly wage rate—Australia, 1954 = 100.  
and building and construction.

(c) Excludes shipping and stevedoring.

(b) Excludes mining and quarrying.  
(d) Preliminary figures; subject to revision.

#### Average Weekly Earnings

The statistics shown in the following table are part of a new series commencing with the September quarter 1966 and are not comparable with those published for earlier periods. A description of the method used in compiling the new series is given in the *Official Year Book of the Commonwealth of Australia: No. 57, 1971* (pages 1065-7).

Statistics of average weekly earnings are derived from information concerning employment and wages and salaries as recorded on Pay-roll Tax returns, from other direct collections, and from estimates of the unrecorded balance. The figures relate to civilians only.

Particulars of wages and salaries paid are not available separately for males and females from these sources. Average weekly earnings have therefore been calculated for each State in terms of male units, i.e. total male employees plus a proportion of female employees, the proportion being determined by the estimated ratio of female to male average earnings.

#### AVERAGE WEEKLY EARNINGS PER EMPLOYED MALE UNIT (a): AUSTRALIAN STATES (\$)

Year	N.S.W. (b)	Vic.	Qld	S.A. (c)	W.A.	Tas.	Aust.
1966-67 .....	63.50	63.90	57.10	57.60	59.20	58.40	61.70
1967-68 .....	67.00	67.60	60.20	61.10	63.90	61.90	65.30
1968-69 .....	72.70	72.10	64.30	65.20	(d) 68.80	65.60	70.20
1969-70 .....	78.80	78.10	69.20	70.90	75.50	(d) 70.70	76.10
1970-71 .....	(d) 87.70	(d) 86.10	(d) 77.70	(d) 78.20	(d) 84.80	(d) 78.40	(d) 84.50
1971-72 (e) .....	96.50	93.60	86.90	86.70	93.60	86.90	93.00

(a) Includes salary and wage payments at award rates; earnings of employees not covered by awards; overtime earnings; over-award payments; bonus payments; and payments made in advance or retrospectively during the years specified. (b) Includes Australian Capital Territory. (c) Includes Northern Territory. (d) Revised due to changes in the estimated ratio of female to male average earnings. (e) Break in series; see letterpress immediately preceding table on page 506. Trainee teachers (and their allowances) have been excluded from the calculation of average weekly earnings from the September quarter of 1971. The effect has been to increase the average in all States by about 30 cents.

The term 'earnings' as used in the table includes: salary and wage payments at award rates; earnings of employees not covered by awards; overtime earnings; over-award payments; bonus payments; and payments made in advance or retrospectively during the years specified. It is important to bear in mind that the figures relate to the whole civilian wage and salary earner field and therefore comprise payments to all grades of employees from junior workers to persons at the highest levels of executive and administrative activity.

Quarterly figures corresponding to those shown in the table are published by the Commonwealth Statistician in the bulletins *Average Weekly Earnings and Wage Rates and Earnings*, in the *Monthly Review of Business Statistics* and in the *Quarterly Summary of Australian Statistics*.

### SURVEY OF WEEKLY EARNINGS AND HOURS

Sample surveys in respect of most private employers subject to Pay-roll Tax (*i.e.* those paying more than \$400 per week in wages and salaries) have been conducted as at the last pay-period in October during recent years.

In addition to obtaining data for the calculation of average weekly earnings, average weekly hours paid for, and average hourly earnings, the surveys obtained information on overtime and ordinary-time earnings and hours, for full-time employees (other than managerial, etc. staff).

The results of the surveys are based on returns from stratified random samples of private employers subject to Pay-roll Tax. Employees in rural industry and in private domestic service are excluded because most employers in these industries are not subject to Pay-roll Tax. Also excluded from the surveys are employees of government and semi-government authorities, and employees of religious, benevolent and other similar organisations exempt from Pay-roll Tax.

Definitions of the terms used in the following tables may be found in the mimeographed publication *Survey of Weekly Earnings and Hours, October 1971*, published by the Commonwealth Statistician, Canberra. This publication also contains further information on the construction of the sample, and more detailed tables.

The two following tables refer to the results for Western Australia.

#### AVERAGE EARNINGS AND HOURS (a)—PRIVATE EMPLOYMENT ALL INDUSTRY GROUPS (b)

Particulars	October—				
	1968	1969	1970	1971	1972
Average weekly earnings (c)—	\$	\$	\$	\$	\$
Adult males	73.00	77.30	85.20	96.10	98.50
Junior males	31.20	34.30	37.90	39.60	41.80
Adult females	38.60	43.40	47.40	52.00	57.30
Junior females	23.90	27.30	30.00	33.70	36.00
Average weekly hours paid for (c)—	hrs	hrs	hrs	hrs	hrs
Adult males	45.8	45.5	45.4	45.8	44.2
Junior males	41.5	41.8	41.9	41.9	41.0
Adult females	39.5	39.9	39.7	39.7	39.9
Junior females	39.4	39.6	39.0	38.9	38.9
Average hourly earnings (c)—	\$	\$	\$	\$	\$
Adult males	1.59	1.70	1.88	2.10	2.23
Junior males	0.75	0.82	0.90	0.94	1.02
Adult females	0.98	1.09	1.19	1.31	1.44
Junior females	0.61	0.69	0.77	0.87	0.93

(a) Excludes managerial, professional and higher supervisory staff. Full-time employees only are included. (b) Excludes rural industry and private domestic service. (c) Last pay-period in October. See also letterpress immediately preceding table.

The following table analyses total earnings for Western Australia to show their overtime component in October 1970 and 1971.

**AVERAGE WEEKLY OVERTIME AND ORDINARY-TIME EARNINGS (a)**  
**PRIVATE EMPLOYMENT (b)**  
**(\$)**

Particulars	Average weekly overtime earnings (a)		Average weekly ordinary-time earnings (a)		Average weekly total earnings	
	October—		October—		October—	
	1970	1971	1970	1971	1970	1971
Adult males—						
Manufacturing—						
Founding, engineering, vehicles, etc. ....	20·40	20·00	63·60	73·70	84·00	93·60
Other ....	12·20	13·20	64·00	70·70	76·20	84·00
Total Manufacturing ....	15·60	16·20	63·80	72·00	79·40	88·30
Non-manufacturing ....	18·50	22·80	70·20	77·70	88·70	100·40
All industry groups (c) ....	17·40	20·50	67·80	75·70	85·20	96·10
Junior males—all industry groups (c) ....	4·00	4·10	33·90	35·50	37·90	39·60
Females—all industry groups (c)						
Adult ....	1·90	2·10	45·50	49·90	47·40	52·00
Junior ....	0·70	0·70	29·30	33·00	30·00	33·70

(a) Averages for all employees represented in the survey. (b) Excludes managerial, professional and higher supervisory staff. Full-time employees only are included. (c) Excludes rural industry and private domestic service.

## HOURS OF WORK AND LEAVE PROVISIONS

**Standard Hours of Work.** In the fixation of weekly wage rates most industrial tribunals prescribe the number of hours constituting a full week's work for the wages specified.

Following applications for the introduction of a working week of forty hours, in place of the existing general standard of forty-four hours, the Commonwealth Court of Conciliation and Arbitration began hearing evidence in October 1945. In its judgment given on 8 September 1947 the Court granted the reduction to forty hours from the beginning of the first pay-period commencing in January 1948. On 6 November 1947 the Western Australian Court of Arbitration approved that, on application, provision for a working week of forty hours could be incorporated in awards of the Court with effect from 1 January 1948.

The forty-hour week has operated in Australia generally from 1 January 1948 (in New South Wales from 1 July 1947). However, the number of hours constituting a full week's work (excluding overtime) differs between occupations and/or between States. The weighted average standard hours of work (excluding overtime) prescribed in awards, determinations and agreements for a full working week, in respect of adult male workers in all industry groups except rural, and shipping and stevedoring, at 30 September 1972 were: New South Wales, 39·78; Victoria, 39·97; Queensland, 39·89; South Australia, 39·96; Western Australia, 39·85; Tasmania, 39·93; Australia, 39·87. Corresponding figures for adult female workers at 30 September 1972 were: New South Wales, 39·53; Victoria, 39·81; Queensland, 39·70; South Australia, 39·77; Western Australia, 39·78; Tasmania, 39·63; Australia, 39·67.

**Annual Leave and Public Holidays.** On 18 April 1963 the Commonwealth Conciliation and Arbitration Commission gave a judgment which had the effect of granting a general increase from two weeks to three weeks in the period of paid annual leave for employees covered by Commonwealth awards.

Following a general inquiry concerning annual leave and public holidays, the Western Australian Court of Arbitration in June 1963 adopted three weeks as the new standard for the normal period of annual leave in State awards, with four weeks for seven-day shift workers. Existing awards and agreements which already provided annual leave in excess of this standard were to be examined separately to ascertain whether special circumstances existed to justify leave greater than the normal standard.

In the inquiry the State Government sought a reduction in the number of public holidays and a review of other conditions where these were more favourable than the Court's standard. Private employers opposed any increase in annual leave but, alternatively, submitted that, if there was to be an increase, then the new standard should be two weeks and four days per annum or the number of public holidays in each year should be reduced by one. Both these submissions were rejected and the standard number of public holidays was retained at ten with the provision that, where an award provided for more than ten public holidays a year, that award, unless the union consented to a reduction to ten, would be excluded from the order amending the annual leave provisions until it was established that special circumstances justified the continuance of the greater number of holidays.

In November 1963 the Court refused an application by employers for the right to split the annual leave into two parts, since it decided to follow the decision of most other State tribunals and allow the additional leave in conformity with conditions similar to those prescribed by the Commonwealth Conciliation and Arbitration Commission. The right to split the leave would be allowed by the Court only in exceptional circumstances, unless all the parties concerned agreed to the inclusion of such a provision.

**Long Service Leave.** The *Long Service Leave Act, 1958-1964* (State) confers entitlement to long service leave with pay on employees for whom such leave is not otherwise provided. Entitlement accrues only in relation to continuous service with one employer, but continuity of service is not affected by the transfer of a business from one employer to another. Leave of thirteen weeks on ordinary pay is granted in respect of the first fifteen years of service. For each subsequent ten years the entitlement is eight and two-thirds weeks, with *pro rata* conditions applying in the case of death or termination of employment for any reason other than serious misconduct. An employee who has completed at least ten years' service but less than fifteen years is entitled to *pro rata* leave, on the basis of thirteen weeks for fifteen years, if his employment is terminated by death; by the employer for any reason other than serious misconduct; or by the employee on account of sickness, injury, or domestic or other pressing necessity. An employee forfeits his right to long service leave if he engages in alternative employment for reward during the period of leave.

## WORKERS' COMPENSATION

The *Workers' Compensation Act, 1912-1970* (State) provides compensation to workers in Western Australia for injuries suffered in the course of their employment, for death resulting from such injuries, and for disabilities due to specified industrial diseases associated with their employment. The provisions of the Act do not extend to employees of the Commonwealth Government, for whom compensation is provided by the *Compensation (Commonwealth Employees) Act 1971-1972*.

Every employer, other than a self-insurer, is required to effect insurance with an approved insurer for the full amount of the liability to pay compensation under the Act to all workers in his employment.

The Act establishes a Workers' Compensation Board of three members, including a chairman, appointed by the Governor. The chairman must be a legal practitioner of not less than seven years' practice and standing. Of the remaining members, one is nominated by the Western Australian Employers' Federation (Incorporated), and one by the Trades and Labor Council of Western Australia. The Board has exclusive jurisdiction to inquire into, hear, and determine all questions and matters arising under the Act, and its actions and decisions are final, except that where any question of law arises in any proceedings before the Board, it may state a case for the decision of the Full Court of the Supreme Court.

It is provided by section 4 (5) of the Act that the amount of payments, allowances and benefits under the Act shall be varied in accordance with movements in the State basic wage payable to adult male workers. In the following paragraphs the amounts shown are those which were in operation at 31 December 1972.

Where total or partial incapacity for work results from the injury, the maximum weekly payment during the period of incapacity is, in the case of an adult worker whose average weekly earnings are not less than the basic wage, \$29·90 for a male and \$22·60 for a female, where there are no dependants. In the case of a worker receiving less than the basic wage and without dependants, the maximum payment is derived by applying to \$29·90 (or \$22·60 for a female) the ratio which his (or her) average weekly earnings bear to the basic wage. Where there are dependants, the maximum payment, in respect of both male and female workers, is equal to the amount of the average weekly earnings.

The total liability of the employer in respect of weekly payments, including payments for dependants, is limited to \$12,076. Additional compensation is payable up to a maximum of \$1,812 (or more, if the Board finds that, in particular circumstances, this amount is inadequate) for expenses incurred in respect of first aid and ambulance services, medicines, medical or surgical attendance, hospital treatment, and the like. In the event of the death of the worker, funeral expenses are compensable up to a maximum of \$180.

The Act provides for compensation in the form of a lump-sum payment, up to a maximum of \$12,076, in respect of specified injuries resulting in such disabilities as loss of sight, hearing or mental powers, or loss of a limb or limbs.

Where death results from the injury and the worker leaves any dependants who were wholly dependent on his earnings, the maximum amount of compensation is \$12,088, together with an additional weekly payment of \$3·90 in respect of each dependent child or step-child aged under sixteen years, or under twenty-one years if a full-time student. It is provided that if a worker leaves a widow, a mother, or a dependent child or step-child aged under sixteen years (or under twenty-one years in the case of a full-time student) wholly dependent on his earnings, the minimum payment shall be \$2,957 plus \$3·90 per week for each dependent child. If a worker dies leaving no dependants, reasonable expenses in connection with medical attendance and burial are payable to the person by whom the expenses were properly incurred.

Disability or death caused by certain specified industrial diseases due to the nature of a worker's employment is compensable at the same rates and under the same conditions as those applying in the case of injury.

## INDUSTRIAL ACCIDENTS

The collection of information required for detailed analysis of industrial accidents occurring in Western Australia commenced on 1 July 1961. From that date all insurers and self-insurers have been required to submit a report to the Workers' Compensation Board in respect of each claim for workers' compensation as soon as the claim is closed. Only accidents coming within the scope of the Workers' Compensation Act are included in the statistics, which therefore exclude industrial accidents resulting in the death of, or injury to, self-employed persons and all Commonwealth Government employees. As the statistics relate only to accidents, particulars of cases of industrial disease are excluded.

With few exceptions, an accident to an employee while travelling between his place of residence and place of employment was not compensable in Western Australia until 14 December 1964, when the *Workers' Compensation Act Amendment Act, 1964* came into operation. From that date, the compensation provisions have been extended generally to include such cases. These cases are not, however, included in the statistics which are intended to cover only those accidents occurring at the work site or in the course of the worker's normal duties. (During the year ended 30 June 1972, 279 claims were reported closed in respect of 'journey' cases involving loss of work for one week or more. The total time lost was 1,926 weeks and the cost of claims amounted to \$116,017.)

For the purpose of the statistics, each claim is regarded as a separate industrial accident and data are prepared from reports of claims closed during the year under review. The item 'cost of claims' refers to *total* payments made (principally in the form of compensation for loss of wages, medical expenses, and lump-sum settlements) in respect of claims closed during the year, and therefore does not necessarily represent amounts actually paid in that year. Similarly, 'time lost' refers to *total* time lost (*i.e.* from date of injury) in respect of claims closed during the year.

The tables in this section include particulars of industrial accidents resulting in death or absence from work of at least one week, *i.e.* a week of five working days. In respect of reopened claims, the additional time lost and additional costs are included in the tables but, to avoid duplication, such cases (of which there were 1,838 in 1971-72) have been excluded from the numbers of accidents shown.

## INDUSTRIAL ACCIDENTS (a)—NUMBER, TIME LOST, AND COST OF CLAIMS (b)

Particulars	1967-68	1968-69	1969-70	1970-71	1971-72
Number of accidents—					
Fatal ....	18	28	36	40	28
Non-fatal ....	13,812	13,859	13,997	15,555	15,773
Time lost (c)—					
Total .... weeks	56,469	53,436	54,087	68,206	68,324
Average per accident .... weeks	4.1	3.9	3.9	4.4	4.3
Cost of claims (b)—					
Fatal accidents .... \$'000	80	158	267	239	180
Non-fatal accidents .... \$'000	3,287	3,310	3,618	4,653	5,075
Total .... \$'000	3,367	3,468	3,884	4,892	5,255
Average per non-fatal accident .... \$	238	239	258	299	322

(a) Accidents resulting in absence from work of one week or more. (b) Refers to *total* payments made (principally compensation for wages lost, medical expenses, and lump-sum settlements) in respect of claims closed during the year, and therefore not necessarily to amounts actually paid in that year. (c) Total time lost (*i.e.* from date of injury) in respect of claims closed during the year.

The following table contains an analysis, according to industry group, of industrial accidents in Western Australia for the year ended 30 June 1972. Accidents have been classified according to the Classification of Industries used in the 1966 Census of Population. The table on page 500 gives an indication of the nature of the sub-groups included in the several industry groups.

INDUSTRIAL ACCIDENTS (a)—NUMBER, TIME LOST, AND COST OF CLAIMS (b)  
INDUSTRY GROUPS : 1971-72

Industry group	Fatal accidents		Non-fatal accidents			
	Number	Cost of claims (b)	Number	Per cent of total	Time lost (c)	Cost of claims (b)
		\$'000			weeks	\$'000
Primary production—						
Mining and quarrying ....	2	12	951	6.0	5,808	417
Other ....	3	39	1,014	6.4	4,214	337
Manufacturing ....	3	24	5,977	37.9	23,523	1,821
Electricity, gas, water and sanitary services (d) ....	2	1	351	2.2	1,956	139
Building and construction ....	4	25	2,863	18.2	12,674	978
Transport, storage and communication ....	7	33	1,320	8.4	6,523	516
Finance and property ....	....	....	18	0.1	64	8
Commerce ....	4	44	1,554	9.9	5,608	375
Public authority (n.e.i.) and defence services ; community and business services ....	2	(e)	958	6.1	4,816	288
Amusement, hotels, cafes, personal service, etc. ....	1	2	767	4.9	3,138	196
Other ....	....	....	....	....	....	....
Total ....	28	180	15,773	100.0	68,324	5,075

(a) Accidents resulting in absence from work of one week or more. (b) See note (b) to previous table. (c) See note (c) to previous table. (d) Production, supply and maintenance. (e) Less than \$500.

The following table gives a classification, according to duration of time lost, of industrial accidents in Western Australia for the year ended 30 June 1972.

## INDUSTRIAL ACCIDENTS (a)—DURATION OF TIME LOST : 1971-72

Duration of time lost (weeks)					Males		Females		Total	
					Number	Time lost (weeks)	Number	Time lost (weeks)	Number	Time lost (weeks)
1 and under	2	....	....	....	6,791	8,658	940	1,190	7,731	9,848
2 "	"	4	....	....	3,734	9,772	493	1,275	4,227	11,047
4 "	"	6	....	....	1,283	6,053	108	518	1,391	6,571
6 "	"	8	....	....	730	4,917	83	565	813	5,481
8 "	"	13	....	....	745	7,301	91	929	836	8,230
13 "	"	26	....	....	446	7,812	62	1,080	508	8,892
26 "	"	52	....	....	140	4,835	17	644	157	5,479
52 "	"	104	....	....	68	4,629	9	647	77	5,276
104 "	"	156	....	....	14	1,754	4	536	18	2,290
156 and over	....	....	....	....	12	2,807	3	775	15	3,582
Total	....	....	....	....	13,963	58,538	1,810	8,158	15,773	66,696
Reopened claims (b)	....	....	....	....	....	1,391	....	237	....	1,628
Total	....	....	....	....	13,963	59,929	1,810	8,395	15,773	68,324

(a) Non-fatal accidents resulting in absence from work of one week or more. (b) Additional time lost which cannot be allocated to appropriate groups. The number of reopened claims reported was 1,838.

Statistics in greater detail, as well as analyses according to additional characteristics, are available in the publications, *Industrial Accidents (Series A)*, which relates to accidents resulting in death or absence from work for one day or more, and *Industrial Accidents (Series B)*, relating to accidents resulting in death or absence from work for one week or more. These publications, which are in mimeographed form, are issued annually by the Western Australian Office of the Commonwealth Bureau of Census and Statistics.

## Chapter X—continued

### Part 2—Employment

NOTE. In addition to the employment data appearing in this Part, references to the numbers of persons engaged in particular activities are to be found elsewhere in the Year Book. In Chapter V, for example, Part 1—*Education* shows numbers engaged in teaching, Part 3—*Health Services, Hospitals, and Care of the Aged and Disabled* contains details of hospital staffs, and employment in building appears in Part 4—*Housing and Building*. In Chapter VIII, Part 1—*Primary Production* gives male employment on rural holdings, at mines and in fishing, and Part 2—*Secondary Production* includes tables relating wholly, or in part, to employment in factories. Chapter IX, Part 3—*Transport* shows numbers engaged in various types of transport undertakings. Some details from the 1971 Census appear in the *Appendix*.

*All tables in this Part which contain information compiled from census schedules exclude particulars of full-blood Aborigines, as required by section 127 (now repealed) of the Australian Constitution; see letterpress Aborigines on page 123.*

The most detailed and comprehensive statistics of employment of the population are those which are derived from the periodic Population Census. Among the most useful of the tabulations based on these enumerations are those which classify the population according to occupational status and industry.

#### THE WORK FORCE

It is customary in modern census practice to distinguish between the economically active and inactive sectors of the community on the basis of those 'In the Work Force' and those 'Not in the Work Force'.

The *work force* comprises all persons engaged in an industry, business, trade, or service, and includes persons who were not working at the time of the census. It includes employers, the self-employed (*i.e.* persons working on own account but not employing others), employees on wage or salary, and unpaid helpers (other than those usually working in such activities for less than fifteen hours per week).

Persons *not in the work force* include children not attending school; full-time students and children attending school; persons of independent means; those engaged in home duties; pensioners and annuitants; and inmates of institutions.

The comprehensive tables resulting from the census include detailed analyses of the work force according to such characteristics as age, marital status, religion, birthplace, occupational status, industry and occupation. For the purpose of this Chapter, only a selection of the tables, in condensed form, relating to occupational status, industry and occupation have been included.

At the Census of 30 June 1966 there were 246,155 males in the work force, representing 57.69 per cent of the total male population.

The number of females in the work force at the 1966 Census was 93,424, or 22.79 per cent of the female population. Of this total, 45,286, equivalent to 48.47 per cent of females in the work force, were married women, including women married but permanently separated.

The 1966 Census work force statistics are not strictly comparable with those of earlier censuses. For a detailed explanation of the new approach adopted at the 1966 Census, the reader is referred to *Census of Population and Housing, 30 June 1966—Vol. 4 Population and Dwellings in Local Government Areas: Part 5 Western Australia*, issued by the Commonwealth Statistician, Canberra. The net effect of the new definition is to include approximately 8,100 additional persons in the Western Australian work force, a proportional increase of approximately 2.4 per cent.

## Classification according to Occupational Status

POPULATION CLASSIFIED ACCORDING TO OCCUPATIONAL STATUS  
CENSUS, 30 JUNE 1966

Occupational status	Males	Females	Persons	Percentage of population		
				Males	Females	Persons
In work force—						
Employed—						
Employer .....	21,383	4,700	26,083	5·01	1·15	3·12
Self-employed .....	25,136	4,689	29,825	5·89	1·14	3·56
Employee (on wage or salary) .....	195,704	79,661	275,365	45·87	19·43	32·91
Helper (not on wage or salary) .....	994	2,310	3,304	0·23	0·56	0·39
Total Employed .....	243,217	91,360	334,577	57·00	22·28	39·99
Unemployed .....	2,938	2,064	5,002	0·69	0·50	0·60
Total in work force .....	246,155	93,424	339,579	57·69	22·79	40·59
Not in work force—						
Child not at school .....	48,732	46,195	94,927	11·42	11·27	11·35
Child attending school or full-time student .....	97,401	90,728	188,129	22·83	22·13	22·49
Mainly dependent on pension or superannuation .....	22,374	32,163	54,537	5·24	7·84	6·52
Of independent means .....	3,626	3,402	7,028	0·85	0·83	0·84
Home duties .....	.....	137,269	137,269	.....	33·48	16·41
Inmates of institutions .....	3,094	3,166	6,260	0·73	0·77	0·75
Others not in work force .....	5,309	3,635	8,944	1·24	0·89	1·07
Total not in work force .....	180,536	316,558	497,094	42·31	77·21	59·41
GRAND TOTAL .....	426,691	409,982	836,673	100·00	100·00	100·00

POPULATION ACCORDING TO OCCUPATIONAL STATUS—AUSTRALIA  
CENSUS, 30 JUNE 1966

Occupational status	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Australia
MALES									
In work force—									
Employed—									
Employer.....	83,466	67,236	44,111	23,747	21,383	8,245	815	1,388	250,391
Self-employed .....	106,723	92,302	49,463	31,135	25,136	9,162	601	1,286	315,808
Employee (on wage or salary) .....	1,058,213	777,217	379,207	259,105	195,704	87,572	12,796	27,304	2,797,118
Helper (not on wage or salary) .....	4,564	3,333	2,486	1,167	994	432	26	46	13,048
Total Employed .....	1,252,966	940,088	475,267	315,154	243,217	105,411	14,238	30,024	3,376,365
Unemployed .....	18,421	10,139	7,964	4,464	2,938	1,147	162	214	45,449
Total in work force .....	1,271,387	950,227	483,231	319,618	246,155	106,558	14,400	30,238	3,421,814
Not in work force .....	853,075	663,677	360,666	228,912	180,536	80,832	7,108	19,739	2,394,545
Total males .....	2,124,462	1,613,904	843,897	548,530	426,691	187,390	21,508	49,977	5,816,359
FEMALES									
In work force—									
Employed—									
Employer.....	19,774	16,747	10,517	6,228	4,700	1,759	225	271	60,221
Self-employed .....	23,170	20,008	11,306	7,205	4,689	1,644	134	263	68,419
Employee (on wage or salary) .....	474,185	374,625	149,378	111,197	79,661	35,451	4,171	12,774	1,241,442
Helper (not on wage or salary) .....	12,566	8,191	5,483	2,613	2,310	940	76	138	32,317
Total Employed .....	529,695	419,571	176,684	127,243	91,360	39,794	4,606	13,446	1,402,399
Unemployed .....	13,070	7,250	4,954	3,563	2,064	971	138	232	32,242
Total in work force .....	542,765	426,821	181,638	130,806	93,424	40,765	4,744	13,678	1,434,641
Not in work force .....	1,566,595	1,178,801	638,150	412,539	316,558	143,280	11,181	32,358	4,299,462
Total females .....	2,109,360	1,605,622	819,788	543,345	409,982	184,045	15,925	46,036	5,734,103

# OCCUPATIONAL STATUS, MARITAL STATUS AND AGE—MALES CENSUS, 30 JUNE 1966

Occupational status and marital status	Age last birthday (years)							Total (a)
	15-19	20-24	25-34	35-44	45-54	55-64	65 and over	
<b>Employers—</b>								
Never married	186	473	555	256	183	132	42	1,827
Married	6	376	3,711	5,504	5,109	3,358	854	18,918
Married but permanently separated	....	2	33	69	72	51	19	246
Widowed	....	1	6	24	45	74	87	237
Divorced	1	....	17	36	53	35	13	155
<b>Total</b>	<b>193</b>	<b>852</b>	<b>4,322</b>	<b>5,889</b>	<b>5,462</b>	<b>3,650</b>	<b>1,015</b>	<b>21,383</b>
<b>Self-employed—</b>								
Never married	575	1,234	1,111	602	450	414	144	4,530
Married	11	652	4,512	5,488	4,336	3,544	1,100	19,643
Married but permanently separated	....	5	59	92	87	65	29	337
Widowed	....	1	2	22	48	142	139	354
Divorced	....	1	23	76	70	79	23	272
<b>Total</b>	<b>586</b>	<b>1,893</b>	<b>5,707</b>	<b>6,280</b>	<b>4,991</b>	<b>4,244</b>	<b>1,435</b>	<b>25,136</b>
<b>Employees (on wage or salary)—</b>								
Never married	26,456	17,305	9,448	4,468	2,783	2,054	372	62,886
Married	422	8,127	31,008	35,293	27,719	19,600	2,407	124,576
Married but permanently separated	3	133	722	1,038	986	667	103	3,652
Widowed	6	15	59	230	534	983	325	2,152
Divorced	8	28	302	660	765	607	68	2,438
<b>Total</b>	<b>26,895</b>	<b>25,608</b>	<b>41,539</b>	<b>41,689</b>	<b>32,787</b>	<b>23,911</b>	<b>3,275</b>	<b>195,704</b>
<b>Helpers (not on wage or salary)—</b>								
Never married	402	150	42	11	12	25	27	669
Married	....	19	30	31	41	57	77	255
Married but permanently separated	....	1	1	2	....	9	4	17
Widowed	....	....	....	....	3	6	30	39
Divorced	....	....	1	1	2	3	7	14
<b>Total</b>	<b>402</b>	<b>170</b>	<b>74</b>	<b>45</b>	<b>58</b>	<b>100</b>	<b>145</b>	<b>994</b>
<b>Total employed—</b>								
Never married	27,619	19,162	11,156	5,337	3,428	2,625	585	69,912
Married	439	9,174	39,261	46,316	37,205	26,559	4,438	163,392
Married but permanently separated	3	141	815	1,201	1,145	792	155	4,252
Widowed	6	17	67	276	630	1,205	581	2,782
Divorced	9	29	343	773	890	724	111	2,879
<b>TOTAL EMPLOYED</b>	<b>28,076</b>	<b>28,523</b>	<b>51,642</b>	<b>53,903</b>	<b>43,298</b>	<b>31,905</b>	<b>5,870</b>	<b>243,217</b>
<b>Unemployed—</b>								
Never married	533	351	263	136	89	80	20	1,472
Married	6	85	278	329	236	232	58	1,224
Married but permanently separated	....	3	24	36	31	20	4	118
Widowed	....	3	1	6	14	21	9	54
Divorced	....	2	8	16	25	15	4	70
<b>Total Unemployed</b>	<b>539</b>	<b>444</b>	<b>574</b>	<b>523</b>	<b>395</b>	<b>368</b>	<b>95</b>	<b>2,938</b>
<b>Total in work force—</b>								
Never married	28,152	19,513	11,419	5,473	3,517	2,705	605	71,384
Married	445	9,259	39,539	46,645	37,441	26,791	4,496	164,616
Married but permanently separated	3	144	839	1,237	1,176	812	159	4,370
Widowed	6	20	68	282	644	1,226	590	2,836
Divorced	9	31	351	789	915	739	115	2,949
<b>TOTAL IN WORK FORCE</b>	<b>28,615</b>	<b>28,967</b>	<b>52,216</b>	<b>54,426</b>	<b>43,693</b>	<b>32,273</b>	<b>5,965</b>	<b>246,155</b>
<b>Not in work force—</b>								
Never married	12,090	1,920	873	572	586	1,199	2,564	(a) 19,804
Married	7	133	475	753	1,086	3,803	14,366	20,623
Married but permanently separated	1	9	34	80	138	251	651	1,164
Widowed	1	1	5	19	58	354	4,378	4,816
Divorced	....	2	20	54	93	216	407	792
<b>Total not in work force</b>	<b>12,099</b>	<b>2,065</b>	<b>1,407</b>	<b>1,478</b>	<b>1,961</b>	<b>5,823</b>	<b>22,366</b>	<b>(a) 47,199</b>
<b>Total males—</b>								
Never married	40,242	21,433	12,292	6,045	4,103	3,904	3,169	(a) 91,188
Married	452	9,392	40,014	47,398	38,527	30,594	18,862	185,239
Married but permanently separated	4	153	873	1,317	1,314	1,063	810	5,534
Widowed	7	21	73	301	702	1,580	4,968	7,652
Divorced	9	33	371	843	1,008	955	522	3,741
<b>GRAND TOTAL</b>	<b>40,714</b>	<b>31,032</b>	<b>53,623</b>	<b>55,904</b>	<b>45,654</b>	<b>38,096</b>	<b>28,331</b>	<b>(a) 293,354</b>

(a) Excludes 43,524 males aged 0-4 years, 45,791 males aged 5-9 years and 44,022 males aged 10-14 years not in the work force.

# OCCUPATIONAL STATUS, MARITAL STATUS AND AGE—FEMALES CENSUS, 30 JUNE 1966

Occupational status and marital status	Age last birthday (years)							Total (a)
	15-19	20-24	25-34	35-44	45-54	55-64	65 and over	
<b>Employers—</b>								
Never married	8	24	24	22	44	50	16	188
Married	7	122	869	1,328	1,122	497	58	4,003
Married but permanently separated			5	21	18	13	4	61
Widowed		1	3	24	113	154	81	376
Divorced			4	24	20	23	1	72
<b>Total</b>	<b>15</b>	<b>147</b>	<b>905</b>	<b>1,419</b>	<b>1,317</b>	<b>737</b>	<b>160</b>	<b>4,700</b>
<b>Self-employed—</b>								
Never married	38	44	30	35	61	83	42	333
Married	10	186	907	1,145	989	509	87	3,833
Married but permanently separated		3	13	23	30	21	2	92
Widowed			5	35	79	132	95	346
Divorced			7	19	38	18	3	85
<b>Total</b>	<b>48</b>	<b>233</b>	<b>962</b>	<b>1,257</b>	<b>1,197</b>	<b>763</b>	<b>229</b>	<b>4,689</b>
<b>Employees (on wage or salary)—</b>								
Never married	23,301	9,117	3,330	1,594	1,473	1,249	339	40,403
Married	730	4,719	7,157	10,165	6,831	2,215	176	31,993
Married but permanently separated	24	195	507	748	705	277	29	2,485
Widowed	6	14	84	402	1,130	1,157	317	3,110
Divorced	2	23	260	532	541	280	32	1,670
<b>Total</b>	<b>24,063</b>	<b>14,068</b>	<b>11,338</b>	<b>13,441</b>	<b>10,680</b>	<b>5,178</b>	<b>893</b>	<b>79,661</b>
<b>Helpers (not on wage or salary)—</b>								
Never married	159	55	29	17	10	11	5	286
Married	15	127	413	508	500	259	60	1,882
Married but permanently separated		3	12	10	4	4	4	37
Widowed		1	3	2	12	33	34	85
Divorced		1	5	4	5	5		20
<b>Total</b>	<b>174</b>	<b>187</b>	<b>462</b>	<b>541</b>	<b>531</b>	<b>312</b>	<b>103</b>	<b>2,310</b>
<b>Total employed—</b>								
Never married	23,506	9,240	3,413	1,668	1,588	1,393	402	41,210
Married	762	5,154	9,346	13,146	9,442	3,480	381	41,711
Married but permanently separated	24	201	537	802	757	315	39	2,675
Widowed	6	16	95	463	1,334	1,476	527	3,917
Divorced	2	24	276	579	604	326	36	1,847
<b>TOTAL EMPLOYED</b>	<b>24,300</b>	<b>14,635</b>	<b>13,667</b>	<b>16,658</b>	<b>13,725</b>	<b>6,990</b>	<b>1,385</b>	<b>91,360</b>
<b>Unemployed—</b>								
Never married	663	228	82	18	16	15		1,022
Married	47	167	219	211	99	28	10	781
Married but permanently separated	4	17	21	36	33	8		119
Widowed		3	2	10	31	31	17	94
Divorced		2	10	13	12	9	2	48
<b>Total Unemployed</b>	<b>714</b>	<b>417</b>	<b>334</b>	<b>288</b>	<b>191</b>	<b>91</b>	<b>29</b>	<b>2,064</b>
<b>Total in work force—</b>								
Never married	24,169	9,468	3,495	1,686	1,604	1,408	402	42,232
Married	809	5,321	9,565	13,357	9,541	3,508	391	42,492
Married but permanently separated	28	218	558	838	790	323	39	2,794
Widowed	6	19	97	473	1,365	1,507	544	4,011
Divorced	2	26	286	592	616	335	38	1,895
<b>TOTAL IN WORK FORCE</b>	<b>25,014</b>	<b>15,052</b>	<b>14,001</b>	<b>16,946</b>	<b>13,916</b>	<b>7,081</b>	<b>1,414</b>	<b>93,424</b>
<b>Not in work force—</b>								
Never married	11,191	1,099	724	557	625	1,209	2,555	(a) 17,960
Married	2,356	12,134	34,202	32,490	26,989	20,116	12,274	140,561
Married but permanently separated	14	144	556	697	568	618	595	3,192
Widowed	2	22	179	531	1,743	5,043	18,603	26,123
Divorced	3	25	180	300	404	513	454	1,879
<b>Total not in work force</b>	<b>13,566</b>	<b>13,424</b>	<b>35,841</b>	<b>34,575</b>	<b>30,329</b>	<b>27,499</b>	<b>34,481</b>	<b>(a) 189,715</b>
<b>Total Females—</b>								
Never married	35,360	10,567	4,219	2,243	2,229	2,617	2,957	(a) 60,192
Married	3,165	17,455	43,767	45,847	36,530	23,624	12,665	183,053
Married but permanently separated	42	362	1,114	1,535	1,358	941	634	5,986
Widowed	8	41	276	1,004	3,108	6,550	19,147	30,134
Divorced	5	51	466	892	1,020	848	492	3,774
<b>GRAND TOTAL</b>	<b>38,580</b>	<b>28,476</b>	<b>49,842</b>	<b>51,521</b>	<b>44,245</b>	<b>34,580</b>	<b>35,895</b>	<b>(a) 283,139</b>

(a) Excludes 41,286 females aged 0-4 years, 43,428 females aged 5-9 years and 42,129 females aged 10-14 years not in the work force.

### Classification according to Industry

For census purposes, industry may be defined as any single *branch of productive activity, trade or service*. It is concerned with the activities of persons, firms or businesses considered as a group producing the same commodity, performing the same process or providing the same service. All persons engaged in any such branch of economic activity are classified industrially as belonging to that particular branch irrespective of their personal occupation within the industry. Examples are: Mining, which includes, in addition to miners and prospectors, such persons as laboratory technicians, transport workers and office staff employed by mining companies; Shipping, which covers staff members of shipping companies and agencies, as well as ships' crews; professional activities such as Medicine, Law and Architecture which include not only qualified practitioners but also persons employed by them as, for example, receptionists, law clerks and draftsmen.

Classification according to industry at the 1966 Census has been made on the basis of the *Classification and Classified List of Industries—Revised: June 1966*, published by the Commonwealth Statistician, Canberra. The Classification divides the work force into 14 Major Groups which, in turn, are divided into 53 Sub-groups and 342 Industry Categories.

In the following table, the work force at 30 June 1966 is classified according to the main industrial groups such as Primary Production; Mining and Quarrying; Manufacturing; and so on. It should be noted that the particulars shown under Public Authority Activities (n.e.i.) are residual figures comprising those persons in the administrative sphere of general government, local government and foreign consular services who have not been classified elsewhere. They do not, therefore, represent the total number of persons engaged in or attached to all fields of government service, Commonwealth, State or Local.

### INDUSTRY AND OCCUPATIONAL STATUS OF THE WORK FORCE CENSUS, 30 JUNE 1966

Industry group	In work force					Un- employed	Total in work force
	Employed						
	Em- ployer	Self- employed	Employee (on wage or salary)	Helper (not on wage or salary)			
MALES							
Primary production	8,260	14,052	13,555	727	370	36,964	
Mining and quarrying	58	185	7,665	9	104	8,021	
Manufacturing	2,018	1,347	46,817	49	314	50,545	
Electricity, gas, water and sanitary services	25	18	5,437	2	26	5,508	
Building and construction	2,613	3,024	27,758	26	465	33,886	
Transport and storage	758	2,035	19,168	12	145	22,118	
Communication	361	511	6,460	3	15	5,698	
Finance and property	4,392	2,416	29,779	67	10	7,351	
Commerce	4,392	2,416	29,779	67	221	36,875	
Public authority (n.e.i.) and defence services	1,519	411	10,843	48	43	10,886	
Community and business services (including professional)	1,340	1,072	5,644	29	67	17,822	
Amusement, hotels, cafes, personal service, etc.	39	65	1,121	13	90	8,175	
Other (a)					1,068	2,306	
Total males in work force	21,383	25,136	195,704	994	2,938	246,155	
FEMALES							
Primary production	1,248	1,949	1,960	1,294	23	6,474	
Mining and quarrying	2	1	306	1	129	310	
Manufacturing	347	271	9,517	84	129	10,348	
Electricity, gas, water and sanitary services	4	4	334	3	1	346	
Building and construction	205	54	862	55	5	1,181	
Transport and storage	114	139	1,478	45	8	1,784	
Communication	51	78	1,326	3	12	1,341	
Finance and property	1,601	1,164	4,250	17	21	4,417	
Commerce	1,601	1,164	20,884	335	217	24,201	
Public authority (n.e.i.) and defence services	189	347	3,022	84	30	3,052	
Community and business services (including professional)	909	608	23,527	189	225	24,372	
Amusement, hotels, cafes, personal service, etc.	30	74	10,461	200	206	12,373	
Other (a)			1,734		1,187	3,225	
Total females in work force	4,700	4,689	79,661	2,310	2,064	93,424	

(a) Comprises the groups *Other industries* and *Industry inadequately described or not stated*.

INDUSTRY OF THE POPULATION  
CENSUS, 30 JUNE 1966

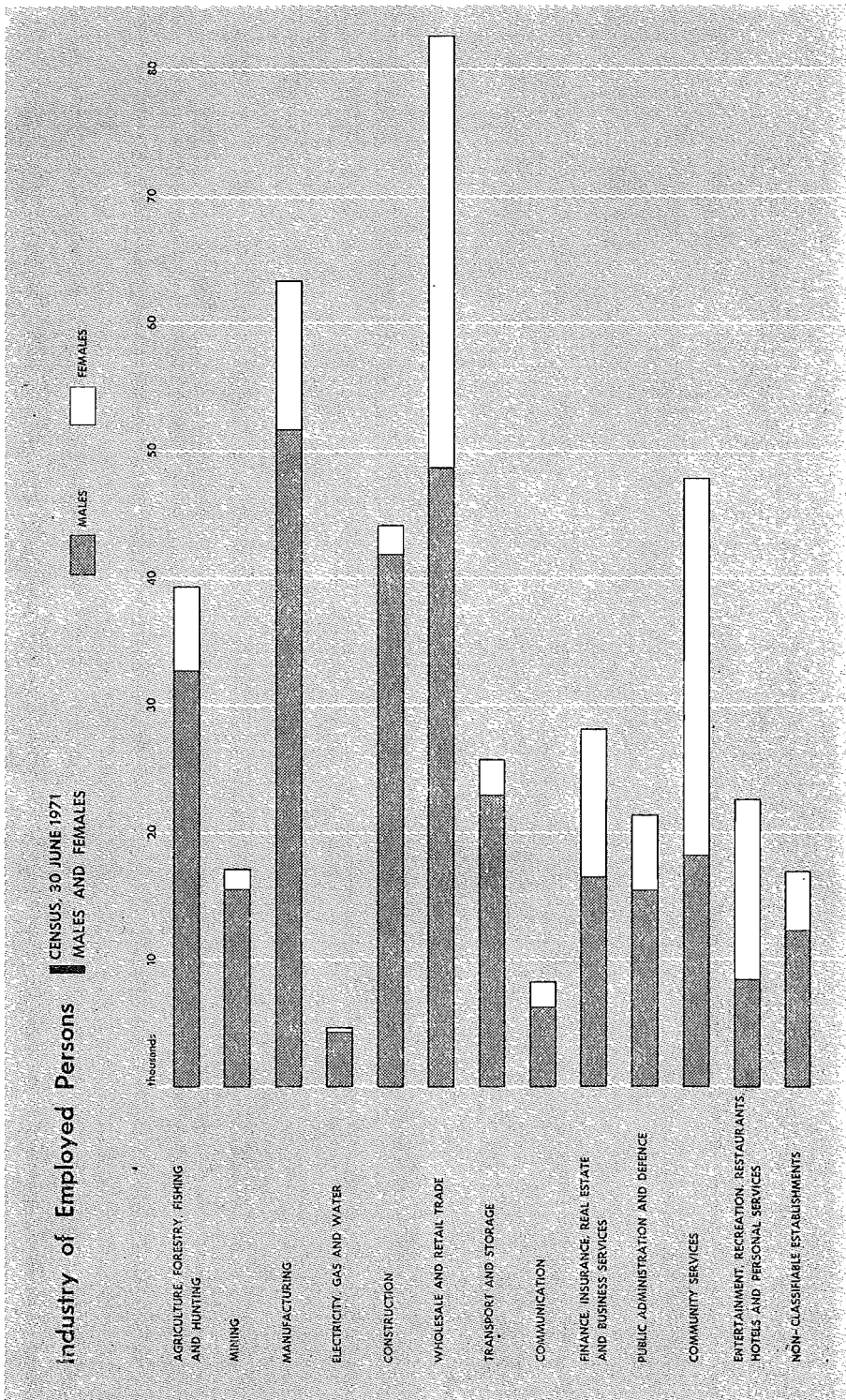
Industry group and sub-group (a)	Males	Females	Persons		
			Number	Percentage of—	
				Work force	Population
Primary production—					
Rural industries .....	34,267	6,375	40,642	11.97	4.86
Other primary production (b) .....	2,697	99	2,796	0.82	0.33
Total, Primary production....	36,964	6,474	43,438	12.79	5.19
Mining and quarrying ....	8,021	310	8,331	2.45	1.00
Manufacturing—					
Cement, bricks, glass and stone ....	3,507	289	3,796	1.12	0.45
Founding, engineering and metal working .....	14,795	1,606	16,401	4.83	1.96
Manufacture, assembly and repair of ships, vehicles, and parts .....	8,337	369	8,706	2.56	1.04
Food, drink and tobacco .....	7,112	2,610	9,722	2.86	1.16
Sawmilling, wood products (other than furniture) .....	5,037	316	5,353	1.58	0.64
Paper and paper products, printing, packaging, bookbinding and photography .....	3,610	1,396	5,006	1.47	0.60
Other and undefined .....	8,127	3,762	11,889	3.50	1.42
Total, Manufacturing .....	50,545	10,348	60,893	17.93	7.28
Electricity, gas, water and sanitary services (c) ....	5,508	346	5,854	1.72	0.70
Building and construction—					
Construction and repair of buildings ....	20,625	931	21,556	6.35	2.58
Construction works (other than buildings) .....	13,261	250	13,511	3.98	1.61
Total, Building and construction .....	33,886	1,181	35,067	10.33	4.19
Transport and storage—					
Road transport .....	8,648	972	9,620	2.83	1.15
Rail and air transport .....	7,614	518	8,132	2.39	0.97
Other transport ; storage .....	5,856	294	6,150	1.81	0.74
Total, Transport and storage .....	22,118	1,784	23,902	7.04	2.86
Communication ....	5,698	1,341	7,039	2.07	0.84
Finance and property—					
Banking .....	3,398	1,674	5,072	1.49	0.61
Insurance .....	2,003	1,413	3,416	1.01	0.41
Other finance and property .....	1,950	1,330	3,280	0.97	0.39
Total, Finance and property .....	7,351	4,417	11,768	3.47	1.41
Commerce—					
Wholesale trade .....	13,774	4,612	18,386	5.41	2.20
Livestock and primary produce dealing, etc. ....	3,365	727	4,092	1.21	0.49
Retail trade .....	19,736	18,862	38,598	11.37	4.61
Total, Commerce .....	36,875	24,201	61,076	17.99	7.30
Public authority (n.e.i.) and defence services .....	10,886	3,052	13,938	4.10	1.67
Community and business services (including professional)—					
Health, hospitals, etc. ....	4,295	12,084	16,379	4.82	1.96
Education .....	6,477	7,969	14,446	4.25	1.73
Other (including professional) .....	7,050	4,319	11,369	3.35	1.36
Total, Community and business services .....	17,822	24,372	42,194	12.43	5.04
Amusement, hotels and other accommodation, cafes, etc. (d)—					
Amusement, sport and recreation .....	2,737	1,234	3,971	1.17	0.47
Hotels, boarding houses and other accommodation, restaurants .....	3,171	6,616	9,787	2.88	1.17
Other personal services .....	2,267	4,523	6,790	2.00	0.81
Total, Amusement, hotels, etc. ....	8,175	12,373	20,548	6.05	2.46
Other industries and industry inadequately described or not stated ....	2,306	3,225	5,531	1.63	0.66
Grand Total—Persons in the work force .....	246,155	93,424	339,579	100.00	40.59
Persons not in the work force .....	180,536	316,558	497,094	....	59.41
TOTAL POPULATION .....	426,691	409,982	836,673	....	100.00

(a) Only those sub-groups in which more than 1 per cent of the work force (equivalent to 3,396 persons) were recorded are shown separately. (b) Comprises *Fishing; Hunting and trapping; and Forestry.* (c) Production, supply and maintenance. (d) Includes *Private domestic service and Other personal services.*

**INDUSTRY OF THE WORK FORCE—CENSUS, 30 JUNE 1966**  
**CLASSIFICATION ACCORDING TO STATISTICAL DIVISION**

Statistical Division	Primary (including mining and quarrying)	Manu- factur- ing	Build- ing and construc- tion	Trans- port, storage and commu- nication	Com- merce	Com- munity and business services (a)	Amuse- ment, hotels, cafes, etc. (b)	Other indus- tries (c)	Total (all indus- tries)
<b>MALES</b>									
Perth Statistical Division	5,921	41,653	19,959	17,973	27,861	13,809	5,921	20,367	153,464
Other Divisions—									
South-West	7,138	4,125	2,430	2,011	2,240	916	557	1,562	20,979
Southern Agricultural	6,411	1,280	1,520	1,182	1,780	564	321	716	13,774
Central Agricultural	8,958	1,260	2,367	1,718	2,104	794	385	1,125	18,711
Northern Agricultural	6,330	725	1,397	1,050	1,309	530	311	659	12,311
Eastern Goldfields	5,594	625	1,314	989	985	563	321	692	11,083
Central	889	28	164	106	58	44	35	72	1,396
North-West	1,130	207	1,686	255	181	220	146	224	4,049
Pilbara	1,445	91	2,247	285	158	148	101	207	4,682
Kimberley	1,126	501	772	410	178	211	68	316	3,582
Total	39,021	8,842	13,897	8,006	8,993	3,990	2,245	5,573	90,567
Total, all Divisions	44,942	50,495	33,856	25,979	36,854	17,799	8,166	25,940	244,031
Migratory (d)	43	50	30	1,837	21	23	9	111	2,124
Total males in work force	44,985	50,545	33,886	27,816	36,875	17,822	8,175	26,051	246,155
<b>FEMALES</b>									
Perth Statistical Division	1,249	9,234	919	2,049	18,619	18,918	8,269	8,814	68,071
Other Divisions—									
South-West	1,067	379	52	242	1,524	1,385	914	589	6,152
Southern Agricultural	1,151	319	40	171	978	835	626	356	4,476
Central Agricultural	1,643	116	47	232	1,192	1,134	765	442	5,571
Northern Agricultural	836	102	31	173	755	712	617	303	3,529
Eastern Goldfields	325	75	21	88	757	763	563	294	2,886
Central	103	3	2	19	46	86	120	24	403
North-West	208	57	32	30	121	143	196	71	858
Pilbara	85	3	20	26	79	117	126	52	508
Kimberley	110	39	17	62	121	259	167	69	844
Total	5,528	1,093	262	1,043	5,573	5,434	4,094	2,200	25,227
Total, all Divisions	6,777	10,327	1,181	3,092	24,192	24,352	12,363	11,014	93,298
Migratory (d)	7	21	....	33	9	20	10	26	126
Total females in work force	6,784	10,348	1,181	3,125	24,201	24,372	12,373	11,040	93,424
<b>PERSONS</b>									
Perth Statistical Division	7,170	50,887	20,878	20,022	46,480	32,727	14,190	29,181	221,535
Other Divisions—									
South-West	8,205	4,504	2,482	2,253	3,764	2,301	1,471	2,151	27,131
Southern Agricultural	7,562	1,599	1,560	1,353	2,758	1,399	947	1,072	18,250
Central Agricultural	10,601	1,376	2,414	1,950	3,296	1,928	1,150	1,567	24,282
Northern Agricultural	7,166	827	1,428	1,223	2,064	1,242	928	962	15,840
Eastern Goldfields	5,919	700	1,335	1,077	1,742	1,326	884	986	13,969
Central	992	31	166	125	104	130	155	96	1,799
North-West	1,338	264	1,718	285	302	363	342	295	4,907
Pilbara	1,530	94	2,267	311	237	265	227	259	5,190
Kimberley	1,236	540	789	472	299	470	235	385	4,426
Total	44,549	9,935	14,159	9,049	14,566	9,424	6,339	7,773	115,794
Total, all Divisions	51,719	60,822	35,037	29,071	61,046	42,151	20,529	36,954	337,329
Migratory (d)	50	71	30	1,870	30	43	19	137	2,250
Total persons in work force	51,769	60,893	35,067	30,941	61,076	42,194	20,548	37,091	339,579

(a) Including Professional. (b) Includes Private domestic service and Other personal services. (c) Comprises Electricity, gas, water and sanitary services (production, supply and maintenance); Finance and property; Public authority (n.e.t.) and defence services; and Industry inadequately described or not stated. (d) Comprises persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left an Australian port before Census night for a next port of call in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.



Classification of the components of the work force according to industry, as in the table on page 499, furnishes much useful information. It is interesting to note, for example, the preponderance of employers and the self-employed in Primary Production. Of the 43,438 persons engaged in this industry at 30 June 1966 nearly 60 per cent were in one or other of these categories.

### Classification according to Occupation

Occupation is defined as the nature of the work which a person performs, and implies *personal* performance. It may be based on the material treated, the process carried out or the type of service rendered by an *individual* worker. Thus the occupation of a person is the kind of work that he or she personally performs, as distinct from industry, which is defined as any single *branch of productive activity, trade or service* and is not concerned with the nature of personal performance.

The Classification of Occupations used in the tabulation of the 1966 Census data has been adapted from and closely adheres to the principles embodied in the International Standard Classification of Occupations issued by the International Labour Office, Geneva, 1958. The International Standard Classification of Occupations was prepared after extensive discussions and research by world experts in this field to provide an adequate classification framework for countries interested in occupational classification and, at the same time, provide a basis for international comparison of occupational data obtained mainly from Censuses of Population. The Australian Classification of Occupations contains 11 Major Groups, 72 Minor Groups and 313 Occupation Categories. In accordance with the International Standard Classification, occupations have been grouped by the general similarity of the characteristics of the work they entail.

Complete descriptions of Major Groups, Minor Groups and Categories, together with a list of occupation titles included under each heading, are contained in the *Classification and Classified List of Occupations—Revised: June 1966*, published by the Commonwealth Statistician, Canberra.

### WORK FORCE CLASSIFIED ACCORDING TO OCCUPATION GROUP CENSUS, 30 JUNE 1966

Occupation group	Males	Females	Persons	Percentage of total		
				Males	Females	Persons
Professional, technical and related workers .....	17,937	13,327	31,264	7.29	14.27	9.21
Administrative, executive and managerial workers .....	17,703	2,115	19,818	7.19	2.26	5.84
Clerical workers .....	20,307	27,193	47,500	8.25	29.11	13.99
Sales workers .....	12,862	14,385	27,247	5.23	15.40	8.02
Farmers, fishermen, hunters, timber getters and related workers .....	38,385	6,081	44,466	15.59	6.51	13.09
Miners, quarrymen and related workers .....	4,709	1	4,710	1.91	0.00	1.39
Workers in transport and communication occupations .....	20,382	2,315	22,697	8.28	2.48	6.68
Craftsmen, production-process workers and labourers, n.e.c. ....	100,081	6,648	106,729	40.66	7.12	31.43
Service, sport and recreation workers .....	9,747	18,295	28,042	3.96	19.58	8.26
Members of armed services .....	2,368	84	2,452	0.96	0.09	0.72
Occupation inadequately described or not stated .....	1,674	2,980	4,654	0.68	3.19	1.37
Total in work force .....	246,155	93,424	339,579	100.00	100.00	100.00

n.e.c. denotes 'not elsewhere classified'.

### Labour Force Survey

Estimates of the civilian labour force are prepared each quarter by the Commonwealth Statistician. They are based on the results of the population survey, which is carried out on a sample basis throughout Australia in February, May, August and November each year. Selected private dwellings (houses, flats, etc.) and other dwellings (hotels, motels, etc.) are visited in the course of each survey. Information is obtained by means of personal interviews carried out by specially trained enumerators. The results of the survey are published by the Commonwealth Statistician in the quarterly release *The Labour Force* and in the annual *Labour Report*. All published figures relate to Australia as a whole, and particulars for individual States are not available.

## ESTIMATES OF EMPLOYMENT

In addition to employment data provided by the census and the labour force survey, there are available monthly estimates of the number of wage and salary earners in civilian employment. The prime purpose of this series is to measure, as nearly as possible with available data, *current monthly trends* in employment in the defined field.

The figures shown in the next table are based on comprehensive data derived for the purpose from the Population Census of 30 June 1966. The statistics have been taken from publications of the Commonwealth Statistician, Canberra. These are *Employed Wage and Salary Earners: June 1966 to June 1969*, issued 24 April 1970, and *Employed Wage and Salary Earners: July 1969 to June 1971*, issued 11 January 1972. Figures for later months are available from the Commonwealth Statistician's monthly release *Employment and Unemployment*. All these publications contain detailed particulars for each of the Australian States and for Australia as a whole.

The statistics on employment obtained from the Census of 30 June 1966 are referred to as 'benchmarks'. For subsequent periods the figures, as in the table on page 505, are estimates designed to measure month-to-month changes in the sector of employment to which the benchmarks relate. These estimates are not comparable with those published for earlier periods, because of (a) the adoption of a new definition of the labour force in the 1966 Population Census (from which the benchmarks for the current series were derived), and (b) the inclusion of full-blood Aborigines.

Between population censuses the employment data are obtained from three main sources: (i) current pay-roll tax returns, which are lodged by all employers paying more than \$400 per week in wages, other than those specifically exempted under the pay-roll tax legislation; (ii) current returns from government bodies; and (iii) some other current returns of employment (*e.g.* for hospitals). The balance, *i.e.* unrecorded private employment, is estimated.

The figures relate only to civilian wage and salary earners, not to the total labour force. They therefore exclude employers, self-employed persons, unpaid helpers and members of the defence forces. Employees in agriculture and in private domestic service are not included in the estimates because the available data are inadequate.

The benchmark figures were derived from particulars recorded for individuals on population census schedules, while the estimated monthly changes are derived mainly from reports supplied by employers, relating to enterprises or establishments. Because the two sources differ in some cases in the reporting of industry, the industry dissection of the census totals has been adjusted to conform as closely as possible to an establishment reporting basis. The industry classification used in preparing the estimates is that of the Population Census of 30 June 1966.

Current data supplied by reporting enterprises or establishments generally refer to persons on the pay-roll for the last pay-period in each month. Persons who are on paid leave or who work during part of the pay-period and are unemployed or on strike during the rest of the period are generally counted as employed. Those not shown on employers' pay-rolls because they are on leave without pay, on strike or stood down for the entire period are excluded.

Particulars of employment obtained from other collections, such as the annual manufacturing census and periodic censuses and sample surveys of retail establishments, are used to check and, where desirable, to revise estimates in relevant sections. For this reason some of the figures in the table are subject to revision as the results of later censuses and surveys become available.

The table on page 505 shows the number of wage and salary earners in civilian employment in Western Australia in various industry groups and sub-groups. The figures appearing against the item 'Other' under the heading 'Other industries' comprise employees in the industry sub-groups *Law, order and public safety; Religion and social welfare; Other community and business services; Amusement, sport and recreation; Hotels, boarding houses and other accommodation, and restaurants; and Other personal services.*

**WAGE AND SALARY EARNERS IN CIVILIAN EMPLOYMENT—INDUSTRY GROUPS**  
(Excluding defence forces and employees in agriculture and private domestic service)  
(Thousands)

Industry group and sub-group	1968		1969		1970		1971		1972
	June	Dec.	June	Dec.	June	Dec.	June	Dec.	June

**MALES**

Forestry, fishing and trapping ....	1.6	1.7	1.7	1.6	1.5	1.5	1.5	1.5	1.5
Mining and quarrying ....	8.4	9.1	9.9	10.8	11.7	12.6	13.5	13.7	13.4
Manufacturing ....	53.8	54.7	55.7	56.5	56.2	57.0	57.9	59.1	56.8
Electricity, gas, water and sanitary services ....	6.0	6.0	6.1	6.4	6.7	7.0	7.1	7.3	7.7
Building and construction ....	28.8	28.9	29.7	30.5	30.9	32.1	34.6	32.9	29.9
Transport and storage—									
Road transport and storage ....	7.4	7.7	7.8	8.3	8.8	9.2	9.4	9.4	9.3
Shipping and stevedoring ....	4.6	4.6	4.7	4.6	4.6	4.6	4.5	4.5	4.1
Rail and air transport ....	8.1	8.0	7.9	7.7	7.8	7.7	7.7	7.8	7.7
Communication ....	6.4	7.3	6.8	7.9	7.2	8.3	7.5	8.3	7.6
Finance and property—									
Banking ....	3.7	3.6	3.9	3.8	4.1	3.9	4.2	4.0	4.1
Other ....	3.7	3.9	4.2	4.4	4.5	4.7	4.6	4.6	4.8
Commerce—									
Retail trade ....	13.8	14.2	14.1	15.2	15.1	15.7	15.7	16.3	16.1
Wholesale and other commerce ....	17.5	19.0	17.9	18.8	18.3	19.4	18.4	19.8	18.0
Public authority activities, n.e.i. ....	9.6	9.8	10.1	10.3	10.8	11.2	11.4	11.5	11.8
Other industries—									
Health, hospitals, etc. ....	3.6	3.6	3.7	3.8	3.8	4.1	4.2	4.3	4.5
Education (a) ....	7.2	6.8	7.3	7.0	7.7	7.4	8.1	7.3	8.3
Other (b) ....	13.0	14.3	15.0	16.0	16.8	18.2	18.8	18.6	18.5
<b>Total (a) ....</b>	<b>197.0</b>	<b>203.2</b>	<b>206.4</b>	<b>213.6</b>	<b>216.5</b>	<b>224.6</b>	<b>229.1</b>	<b>231.0</b>	<b>224.2</b>

**FEMALES**

Forestry, fishing and trapping ....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Mining and quarrying ....	0.5	0.5	0.6	0.8	0.9	1.1	1.2	1.2	1.2
Manufacturing ....	11.4	11.9	12.3	12.9	13.2	13.1	13.0	13.4	12.8
Electricity, gas, water and sanitary services ....	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5
Building and construction ....	1.3	1.4	1.5	1.6	1.7	1.9	2.2	2.1	1.9
Transport and storage—									
Road transport and storage ....	0.7	0.7	0.8	0.8	0.8	0.8	0.9	0.9	0.9
Shipping and stevedoring ....	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Rail and air transport ....	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.8
Communication ....	1.6	1.7	1.7	1.9	2.0	2.2	2.3	2.3	2.4
Finance and property—									
Banking ....	2.0	2.0	2.3	2.3	2.7	2.7	2.9	2.9	3.0
Other ....	3.0	3.2	3.5	3.8	4.1	4.2	4.1	4.0	4.1
Commerce—									
Retail trade ....	18.8	19.9	19.7	22.0	20.7	21.9	21.0	22.4	21.6
Wholesale and other commerce ....	6.3	6.5	6.8	7.0	7.2	7.3	7.4	7.5	7.3
Public authority activities, n.e.i. ....	3.5	3.7	4.0	4.2	4.4	4.7	4.9	4.9	5.1
Other industries—									
Health, hospitals, etc. ....	13.4	13.5	14.7	15.1	15.8	16.3	17.2	18.3	19.5
Education (a) ....	9.2	7.6	10.2	8.6	11.7	9.8	12.9	8.8	12.6
Other (b) ....	16.3	17.3	17.8	19.4	20.7	22.6	23.3	23.6	24.0
<b>Total (a) ....</b>	<b>89.3</b>	<b>91.2</b>	<b>97.3</b>	<b>101.9</b>	<b>107.5</b>	<b>110.2</b>	<b>114.8</b>	<b>114.1</b>	<b>118.0</b>

**PERSONS**

Forestry, fishing and trapping ....	1.7	1.8	1.8	1.7	1.6	1.6	1.6	1.6	1.6
Mining and quarrying ....	8.9	9.6	10.5	11.6	12.6	13.7	14.7	14.9	14.6
Manufacturing ....	65.2	66.6	68.0	69.4	69.3	70.1	71.0	72.5	69.6
Electricity, gas, water and sanitary services ....	6.4	6.4	6.5	6.8	7.2	7.5	7.6	7.7	8.2
Building and construction ....	30.1	30.3	31.2	32.1	32.6	34.0	36.8	34.9	31.7
Transport and storage—									
Road transport and storage ....	8.1	8.4	8.6	9.0	9.6	10.0	10.2	10.4	10.2
Shipping and stevedoring ....	4.9	4.9	5.0	4.9	4.9	4.9	4.8	4.8	4.4
Rail and air transport ....	8.7	8.6	8.5	8.4	8.5	8.5	8.5	8.7	8.4
Communication ....	8.0	9.0	8.5	9.9	9.2	10.5	9.8	10.6	9.9
Finance and property—									
Banking ....	5.7	5.6	6.2	6.1	6.8	6.6	7.1	6.9	7.1
Other ....	6.7	7.1	7.7	8.2	8.6	8.9	8.7	8.6	8.9
Commerce—									
Retail trade ....	32.6	34.1	33.8	37.2	35.9	37.6	36.7	38.7	37.8
Wholesale and other commerce ....	23.8	25.5	24.7	25.9	25.5	26.7	25.7	27.3	25.3
Public authority activities, n.e.i. ....	13.1	13.5	14.1	14.5	15.3	15.9	16.2	16.4	16.9
Other industries—									
Health, hospitals, etc. ....	17.0	17.1	18.4	18.9	19.6	20.4	21.3	22.7	24.1
Education (a) ....	16.4	14.4	17.5	15.6	19.4	17.2	21.0	16.1	20.9
Other (b) ....	29.3	31.6	32.8	35.5	37.5	40.8	42.1	42.2	42.5
<b>Total (a) ....</b>	<b>286.3</b>	<b>294.4</b>	<b>303.7</b>	<b>315.5</b>	<b>324.0</b>	<b>334.8</b>	<b>343.9</b>	<b>345.1</b>	<b>342.2</b>

(a) See letterpress immediately preceding next table.

(b) See letterpress at foot of previous page.

Employees of government and semi-government authorities are included in the figures shown in the table on page 505. Estimates of the numbers employed by Commonwealth, State and local government authorities are available separately. They include not only those engaged in administrative activities but also employees on services such as railways, road transport, air transport, shipping, education, health, hospitals and institutions, migrant hostels, banks, post office, broadcasting and television, police, factories, electricity generation and supply, water conservation, irrigation, road and bridge construction, harbour works and other public works. In the following table, government employment so defined is shown for the months of June and December in the period from June 1968 to June 1972.

At the Population Census of 30 June 1971 trainee teachers were, for the first time, classified as not being in the work force. They have been excluded from the employment estimates from July 1971 onwards, and there is consequently a break in series between the figures for June 1971 and those for July 1971 and later months. The approximate numbers excluded from the estimates for July 1971 were 400 males and 1,500 females.

GOVERNMENT AUTHORITIES—CIVILIAN EMPLOYEES IN WESTERN AUSTRALIA (a)  
(Thousands)

Month	Commonwealth (b)			State (b) (c)			Local government (c)			Total (b)		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
1968—												
June ....	13.2	3.8	17.0	43.9	13.7	57.6	5.2	0.8	5.9	62.3	18.3	80.6
Dec. ....	13.9	4.0	17.9	44.1	12.5	56.7	5.3	0.8	6.1	63.4	17.3	80.7
1969—												
June ....	13.6	4.2	17.9	45.0	15.3	60.2	5.4	0.9	6.3	64.0	20.4	84.4
Dec. ....	14.8	4.5	19.3	44.8	14.5	59.3	5.7	1.0	6.6	65.2	20.0	85.2
1970—												
June ....	14.3	4.7	19.0	45.9	17.1	63.1	5.7	1.0	6.7	65.9	22.8	88.8
Dec. ....	15.3	4.8	20.1	46.7	16.0	62.7	5.7	1.0	6.8	67.7	21.9	89.6
1971—												
June ....	14.7	5.1	19.7	47.7	18.7	66.5	5.6	1.0	6.7	68.0	24.8	92.9
Dec. (d)	15.5	5.1	20.7	47.5	15.5	63.0	5.8	1.1	6.9	68.9	21.7	90.6
1972—												
June ....	15.0	5.3	20.3	50.2	18.7	69.0	6.5	1.1	7.6	71.7	25.1	96.8

(a) Included in the figures shown in the table on page 505.  
(c) Excludes a small number of employees engaged in agriculture.  
see letterpress immediately preceding table.

(b) Includes employees of semi-government authorities.  
(d) A line drawn across a column indicates a break in series;

## UNEMPLOYMENT

A full count of unemployed persons in Western Australia is available only from population censuses. At the post-war censuses details have been obtained of all persons usually engaged in an industry, business, profession, trade or service but who were without employment at the time of the census, irrespective of whether they were actively seeking employment or not. At the 1966 Census, 2,938 males and 2,064 females were classified as being without employment. This was equivalent to 1.47 per cent of the total work force. Numbers of males and females unemployed in each of the Australian States and Territories and Australia as a whole are given in the table on page 496.

### Department of Labour

Monthly figures are compiled by the Department of Labour (until December 1972, the Department of Labour and National Service) from the operations of its Commonwealth Employment Service. These data provide indicators of movement in the level of unemployment.

The department makes a count of the number of persons, registered with the Employment Service for employment on the Friday nearest to the end of the month, who claimed at the time of registering that they were not employed, and who were still recorded as unplaced. Included in the figures are persons who have been referred to employers and

those who may have obtained employment without notifying the department. Also available from the Department of Labour is the number of vacancies, registered by employers, which were recorded as unfilled at the end of the month.

The following table gives a classification according to occupational group of unemployed persons and unfilled vacancies in Western Australia at the end of June of the years 1970 to 1972. The figures are taken from the *Monthly Review of the Employment Situation*, which is published by the Department of Labour and contains similar statistics, together with additional information, for each of the Australian States and for Australia as a whole.

#### UNEMPLOYED PERSONS AND UNFILLED VACANCIES CLASSIFIED ACCORDING TO OCCUPATIONAL GROUP

Occupational group	At end of June (a)—								
	1970			1971			1972		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
<b>UNEMPLOYED PERSONS (b) (c)</b>									
Rural ....	230	3	233	255	11	266	256	3	259
Professional and semi-professional ....	19	39	58	37	40	77	76	96	172
Clerical and administrative ....	303	859	1,162	473	1,120	1,593	937	1,705	2,642
Skilled building and construction ....	355	...	355	253	...	253	524	...	524
Skilled metal and electrical ....	228	...	228	287	...	287	1,032	1	1,033
Other skilled (d) ....	64	8	72	86	17	103	220	9	229
Semi-skilled ....	824	252	1,076	1,269	261	1,530	2,704	442	3,146
Unskilled manual ....	1,271	5	1,276	1,761	5	1,766	2,624	10	2,634
Service occupations (e) ....	182	505	687	302	506	808	639	798	1,437
<b>Total</b> ....	<b>3,476</b>	<b>1,671</b>	<b>5,147</b>	<b>4,723</b>	<b>1,960</b>	<b>6,683</b>	<b>9,012</b>	<b>3,064</b>	<b>12,076</b>
<b>UNFILLED VACANCIES (f)</b>									
Rural ....	50	1	51	26	1	27	57	2	59
Professional and semi-professional ....	150	240	390	53	140	193	32	165	197
Clerical and administrative ....	223	330	553	122	246	368	88	198	286
Skilled building and construction ....	101	...	101	96	...	96	73	...	73
Skilled metal and electrical ....	544	1	545	687	3	690	205	3	208
Other skilled (d) ....	226	12	238	100	11	111	52	3	55
Semi-skilled ....	602	165	767	393	91	484	244	76	320
Unskilled manual ....	186	10	196	129	9	138	140	5	145
Service occupations (e) ....	59	306	365	47	186	233	35	186	221
<b>Total</b> ....	<b>2,141</b>	<b>1,065</b>	<b>3,206</b>	<b>1,653</b>	<b>687</b>	<b>2,340</b>	<b>926</b>	<b>638</b>	<b>1,564</b>

(a) At the Friday nearest to the end of June. (b) Persons who claimed when registering with the Commonwealth Employment Service that they were not employed and who were recorded as unemployed. Includes those referred to employers and those who may have obtained employment without notifying the Commonwealth Employment Service. Includes also persons receiving unemployment benefit. (c) Includes persons seeking apprenticeships, cadetships and other forms of training. (d) Includes skilled workers in mining and in the following trades: stone, glass, chemicals, leather, rubber, clothing, textiles, footwear, food, drink, tobacco, wood, furnishing, paper and printing. (e) Includes hairdressers; private domestic, hotel and guest-house workers; caretakers and cleaners; and protective service occupations. (f) Includes apprenticeships, cadetships and other forms of training.

Applications for unemployment benefit are received by the Department of Labour acting on behalf of the Department of Social Security. Persons seeking unemployment benefit must register with the Commonwealth Employment Service (see below), which is responsible for certifying that suitable employment is not available before benefits can be paid. Statistics of the number of persons receiving unemployment benefits are given on page 236.

#### COMMONWEALTH EMPLOYMENT SERVICE

The Commonwealth Employment Service is established under the provisions of the *Re-establishment and Employment Act 1945-1966*. The main functions of the Service are to assist people seeking employment to obtain positions best suited to their training, experience, abilities and qualifications, and to assist employers seeking labour to obtain employees best suited to the kinds of work being offered.

Specialised facilities are provided for young people; persons with physical and mental handicaps; former members of the defence forces; Aborigines; rural workers; and persons with professional and technical qualifications. Vocational guidance is provided without charge by a staff of qualified psychologists. Guidance is available to any person, but is provided particularly for young people, ex-servicemen and the physically handicapped.

The Commonwealth Employment Service is responsible for placing in employment migrant workers sponsored by the Commonwealth under migration schemes. This function includes arranging for them to move to their initial employment and for their admission, if necessary, to Commonwealth migrant hostels.

In association with placement activities, regular surveys of the labour market are carried out, and detailed information is supplied to interested Commonwealth and State Government departments and instrumentalities and to the public. Employers, employees and other interested persons are advised on labour availability, industrial training and employment opportunities in various occupations and areas and on other matters concerning employment.

In Western Australia at 30 June 1972, the Commonwealth Employment Service operated five offices in Perth and suburbs, and there were offices at Albany, Bunbury, Esperance, Geraldton, Kalgoorlie, Manjimup, Medina, Merredin, Northam and Port Hedland.

The Commonwealth Employment Service has a Professional Employment Office in Perth, which deals with the placement of the more highly qualified executive and professional applicants. Experts for overseas service under technical aid programmes are recruited by the Service.

## Chapter X—continued

### Part 3—Prices

#### RETAIL PRICES AND PRICE INDEXES

Prices of a limited range of commodities are recorded in the Blue Books of Western Australia from the early years of settlement. Retail prices of food and groceries and average rentals of houses for years extending back to 1901 have been collected by the Commonwealth Statistician, but it was not until 1911 that a systematic collection of retail price statistics was begun. These statistics were used to compile the 'A' Series Index, which covered food, groceries and house rents and was first compiled in 1912 with the year 1911 as base = 1,000. Four other indexes covering a wider range of commodities and services were compiled by the Commonwealth Statistician at different times before the current Consumer Price Index was introduced in 1960 (retrospectively to the September quarter of 1948).

Retail price indexes aim to measure the changes which occur in the general level of prices in a selected field. The basic principle of a price index is to select commodities and services representative of the field to be covered, and to combine their prices at regular intervals by the use of 'weights' which represent the relative importance of the several commodities and services in the selected field taken as a whole.

Information concerning retail price indexes and their development in Australia is given in the *Official Year Book of the Commonwealth of Australia* and the *Labour Report*, published by the Commonwealth Statistician, Canberra.

**The Consumer Price Index.** The purpose of the Consumer Price Index is to measure quarterly variations in retail prices of goods and services representing a high proportion of the expenditures of wage-earner households. The weighting pattern relates to estimated aggregates of household expenditures and not to estimated expenditures of an 'average' or individual household of specified size, type, or mode of living.

The index covers a wide range of commodities and services arranged in five major groups, comprising Food; Clothing and Drapery; Housing; Household Supplies and Equipment; and Miscellaneous. With certain exceptions, the weights for individual items comprising these groups are derived from estimates of average household consumption or expenditure for the community as a whole.

The Consumer Price Index is designed essentially to measure the proportionate change in prices as combined in the individual groups, and more particularly, the total of the groups. Consumer (retail) price indexes are sometimes loosely called 'cost of living indexes' and are thought to measure changes in the 'cost of living'. While they may be used as indicating proportional variations in cost of a constant standard of living, they do not measure the absolute cost of any standard of living, nor the absolute cost of changes in the standard of living. The change in prices of goods and services is nevertheless a very important part of the change in the cost of living and this part is measured by consumer (retail) price indexes.

The incidence and frequency of changes in the pattern of household expenditure since 1950 have been such as to make it necessary to construct not one but a series of new indexes introducing additional items and changes in weighting patterns at short intervals. The Consumer Price Index therefore consists of a sequence of short-term retail price indexes linked to form one continuous series. At times of linking, the weighting pattern was altered and new items which had become significant in household expenditure were introduced. In each period between links the items and weighting remained unchanged.

The most recent link in the series was made as at the December quarter of 1968. The weighting of this sixth linked index has been derived from analyses of data from the 1966 Census of Population and Housing, from recent statistics and estimates of production and consumption, and from several special-purpose sample surveys. Weights of all items have been reviewed and are, in general, now based on the pattern of consumption of the years 1962-63 to 1966-67. Further information is contained in the mimeographed release *Consumer Price Index—March Quarter 1969* issued by the Commonwealth Statistician, Canberra.

When the latest link was effected, the reference base year of the index was changed from 1952-53 = 100·0 to 1966-67 = 100·0. All Consumer Price Index numbers which had previously been published on the 1952-53 reference base were recalculated on the new 1966-67 reference base and are available for each quarter and each year from the September quarter of 1948. Index numbers for past periods show exactly the same percentage movements on either reference base, apart from some slight differences caused by rounding.

The Consumer Price Index is compiled for each of the six State capital cities and for Canberra. The separate city indexes measure price movements within each city individually. They enable comparisons to be drawn between cities as to differences in the degree of price movement, but not as to differences in the price level.

In tables dealing with the Consumer Price Index, the figures appearing after the decimal point have little significance for general statistical purposes. They are inserted to avoid distortions that would occur in rounding off the figures to the nearest whole number.

The following table shows the several group index numbers and the 'All groups' index numbers, for Perth and for the six State capital cities combined, for selected years during the period 1948-49 to 1971-72.

CONSUMER PRICE INDEX  
(Base of each Index: Year 1966-67 = 100·0)

Year	Group index numbers					Combined index (All groups)	
	Food	Clothing and drapery	Housing	Household supplies and equipment	Miscellaneous		
PERTH							
1948-49	....	38·4	50·6	36·1	60·4	45·4	44·0
1953-54	....	74·0	84·8	62·0	92·7	66·8	74·6
1958-59	....	80·3	90·8	75·0	96·3	79·6	83·2
1963-64	....	87·4	95·7	89·8	95·7	86·2	89·8
1966-67	....	100·0	100·0	100·0	100·0	100·0	100·0
1967-68	....	102·9	102·1	105·8	100·7	103·2	102·9
1968-69	....	104·5	104·5	112·7	102·1	105·6	105·5
1969-70	....	108·1	107·8	120·1	103·7	109·8	109·4
1970-71	....	112·5	112·3	125·7	107·7	114·8	114·1
1971-72	....	116·4	118·9	133·7	112·7	124·5	120·7
SIX STATE CAPITAL CITIES COMBINED (a)							
1948-49	....	38·2	48·9	40·5	58·3	44·7	43·9
1953-54	....	73·2	84·3	58·5	88·3	67·1	73·5
1958-59	....	81·6	90·5	72·9	94·4	81·4	83·6
1963-64	....	89·0	95·3	89·1	96·4	87·3	90·6
1966-67	....	100·0	100·0	100·0	100·0	100·0	100·0
1967-68	....	104·7	102·2	104·5	101·2	102·8	103·3
1968-69	....	105·8	104·3	109·1	102·9	107·5	106·0
1969-70	....	108·1	107·5	115·5	104·1	111·6	109·4
1970-71	....	112·4	111·9	123·5	107·4	117·8	114·6
1971-72	....	116·8	118·5	133·0	111·7	130·4	122·2

(a) Weighted average.

The following table shows the 'All groups' index numbers for the six State capital cities, separately and combined, for selected years during the period 1948-49 to 1971-72.

**CONSUMER PRICE INDEX—'ALL GROUPS' INDEX NUMBERS  
SIX STATE CAPITAL CITIES, SEPARATELY AND COMBINED**

(Base of each Index: Year 1966-67 = 100·0)

NOTE. The separate city indexes measure price movements within each city individually. They enable comparisons to be drawn between cities as to differences in degree of price movement, but not as to differences in price level.

Year	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Weighted average of six State capital cities
1948-49	44·4	43·3	43·1	45·0	44·0	43·0	43·9
1953-54	74·5	72·5	70·9	74·7	74·6	74·4	73·5
1958-59	84·6	82·9	82·1	83·6	83·2	84·1	83·6
1963-64	91·4	90·4	89·6	90·2	89·8	91·7	90·6
1966-67	100·0	100·0	100·0	100·0	100·0	100·0	100·0
1967-68	103·2	103·7	103·3	102·9	102·9	104·6	103·3
1968-69	106·2	106·2	105·5	105·3	105·5	106·1	106·0
1969-70	110·6	108·7	108·4	108·2	109·4	108·5	109·4
1970-71	116·8	113·1	114·2	112·5	114·1	112·6	114·6
1971-72	125·9	119·7	121·6	119·2	120·7	119·3	122·2

**Retail Price Index Numbers, 1901 to 1972.** The index numbers shown in the following table are presented as a continuous series, but they give only a broad indication of long-term trends in retail price levels. They are derived by linking a number of indexes that differ greatly in scope. The successive indexes used are: from 1901 to 1914, the 'A' Series Retail Price Index; from 1914 to 1946-47, the 'C' Series Retail Price Index; from 1946-47 to 1948-49, a composite of Consumer Price Index Housing Group (partly estimated) and 'C' Series Index excluding Rent; from 1948-49 onwards, the Consumer Price Index.

**RETAIL PRICE INDEX NUMBERS, 1901 TO 1972**

**SIX STATE CAPITAL CITIES COMBINED**

(Base: Year 1911 = 100)

Year	Index number	Year	Index number	Year	Index number
1901	88	1925	165	1949	240
1902	93	1926	168	1950	262
1903	91	1927	166	1951	313
1904	86	1928	167	1952	367
1905	90	1929	171	1953	383
1906	90	1930	162	1954	386
1907	90	1931	145	1955	394
1908	95	1932	138	1956	419
1909	95	1933	133	1957	429
1910	97	1934	136	1958	435
1911	100	1935	138	1959	443
1912	110	1936	141	1960	459
1913	110	1937	145	1961	471
1914 (a)	114	1938	149	1962	469
1915 (a)	130	1939	153	1963	472
1916 (a)	132	1940	159	1964	483
1917 (a)	141	1941	167	1965	502
1918 (a)	150	1942	181	1966	517
1919 (a)	170	1943	188	1967	534
1920 (a)	193	1944	187	1968	548
1921 (a)	168	1945	187	1969	564
1922 (a)	162	1946	190	1970	586
1923	166	1947	198	1971	621
1924	164	1948	218	1972	658

(a) November.

**Retail Prices.** The average retail prices of selected items of food and groceries in Perth are shown in the following table.

AVERAGE RETAIL PRICES OF FOOD AND GROCERIES—PERTH  
(Cents)

Commodity	Unit	1968	1969	1970	1971	1972
<b>GROCERIES</b>						
Bread, ordinary white, delivered ....	2 lb	19.0	19.8	21.0	21.4	22.8
Flour, plain ....	2 lb pkt	15.3	16.0	16.1	16.8	17.4
" self-raising ....	....	18.6	19.6	19.4	20.5	21.1
Tea ....	$\frac{3}{4}$ lb pkt	30.6	29.5	28.7	30.4	32.4
Sugar ....	4 lb pkt	40.7	40.4	40.5	40.0	40.0
Rice ....	1 lb pkt	14.5	15.0	15.2	15.6	15.9
Jam, plum ....	1 $\frac{1}{2}$ lb	29.4	30.9	n.a.	n.a.	n.a.
" apricot ....	....	n.a.	n.a.	36.0	38.2	39.9
Oats, rolled ....	1 $\frac{1}{2}$ lb pkt	24.1	27.2	27.7	29.7	30.7
Peaches, canned ....	29 oz	32.5	33.9	35.4	36.4	36.6
Pears, canned ....	....	32.5	33.8	35.4	35.8	35.3
Potatoes ....	7 lb	42.6	42.1	47.2	51.3	51.0
Onions, brown ....	1 lb	11.1	8.0	10.7	12.1	10.3
Soap, laundry ....	20 oz pkt	31.9	32.7	34.6	35.8	35.0
<b>DAIRY PRODUCE</b>						
Butter ....	lb	49.9	52.2	53.2	54.3	55.5
Cheese, processed ....	8 oz pkt	24.9	24.8	24.5	25.7	27.7
Eggs, 55 grams (a) ....	dozen	65.3	66.1	66.1	66.0	63.9
Bacon, rashers, prepacked ....	$\frac{1}{2}$ lb	43.7	44.2	44.1	45.0	44.8
Milk, condensed ....	14 oz tin	21.3	n.a.	n.a.	n.a.	n.a.
" evaporated ....	14 $\frac{1}{2}$ oz tin	n.a.	17.1	17.5	18.0	19.5
" fresh, bottled, delivered ....	quart (b)	20.0	20.0	20.0	21.8	23.3
<b>MEAT</b>						
Beef (fresh)—						
Sirloin ....	lb	61.2	n.a.	n.a.	n.a.	n.a.
Rib (without bone) ....	....	54.0	54.2	57.0	57.2	60.4
Steak, rump ....	....	96.8	101.2	113.4	119.5	123.0
" T-bone (c) ....	....	n.a.	81.6	89.7	95.9	103.1
" chuck ....	....	56.0	57.3	62.2	63.7	64.7
Sausages ....	....	24.3	24.8	26.2	26.9	25.1
Beef (corned)—						
Silverside ....	....	56.8	58.8	63.5	66.6	69.0
Brisket ....	....	44.6	44.6	47.6	46.8	47.0
Mutton (fresh)—						
Leg ....	....	32.6	31.9	33.6	32.8	35.6
Forequarter ....	....	20.2	n.a.	n.a.	n.a.	n.a.
Chops, loin ....	....	28.5	27.1	28.9	27.7	29.7
" leg ....	....	31.1	28.9	30.1	29.5	32.9
" forequarter ....	....	n.a.	23.0	24.4	23.6	24.2
Lamb (fresh)—						
Leg ....	....	48.4	49.8	52.1	49.2	53.3
Forequarter ....	....	30.5	n.a.	n.a.	n.a.	n.a.
Chops, loin ....	....	48.3	50.1	52.7	47.6	54.9
" leg ....	....	49.0	50.6	53.8	50.3	56.6
" forequarter ....	....	n.a.	42.9	45.1	41.4	46.8
Pork (fresh)—						
Leg ....	....	63.8	64.1	65.3	66.9	67.3
Loin ....	....	64.4	64.8	65.7	67.4	68.0
Chops ....	....	64.3	64.7	65.5	68.1	68.2

n.a. denotes 'not available'.

(a) Eggs, 24 oz prior to July 1972. One gram = 0.0353 oz approx. (b) Price for two 1-pint bottles. (c) With fillet; T-bone without fillet prior to June quarter 1972.

## WHOLESALE PRICE INDEXES OF MATERIALS USED IN BUILDING

**House Building.** The Wholesale Price Index of Materials used in House Building is compiled by the Commonwealth Statistician and was first published in November 1970 (retrospectively to July 1966). Index numbers are produced monthly for each State capital city and for the six State capital cities combined.

The index measures changes in prices of selected materials used in the construction of houses. Its composition is in accordance with the usage of materials in actual houses which were selected as representative for the purpose. The index does not purport to represent buildings of any kind other than houses. The house building construction types included are those which use brick, brick veneer, timber, or asbestos-cement sheeting as the principal material for the outer walls.

The following numbers of items are included in the lists for the respective State capital cities: Melbourne, Adelaide and Hobart, 50; Sydney, 50 (but vinyl floor tiles are not included in the item elsewhere described as 'Ceramic and vinyl floor tiles'); Brisbane,

49 (heating systems not included); and Perth, 51 (building stone and silica-lime bricks included but plaster board not included). In all cases the selection of materials was based on local usage. Items are combined in eleven groups in addition to the 'All groups' index. Some items carry the weight of similar items not directly priced. They are described in terms of fixed specifications with the aim of recording price changes for representative materials of constant quality.

The reference base of the index is the year 1966-67 = 100·0, the same as that used for the Wholesale Price Index of Materials used in Building other than House Building (see below). The index is a fixed-weights index and is calculated by the method known as 'the weighted arithmetic mean of price relatives'. The items and weights were derived from reported values of each material used in selected representative houses constructed in or about the year 1968-69 in each State capital city. The selection took account, within the four major construction types, of a range of characteristics of these houses, e.g. internal partitions, windows, roofing, etc., as well as whether such things as paths and fences were included in the job.

Data obtained in each State capital city were used to construct for that city its own list of items and its individual weighting pattern. The weighting pattern derived for the weighted average of the six State capital cities is an aggregation of the individual city patterns, the weight given to each item being proportional to its estimated importance in materials usage in houses of the specified types completed in the six capital cities in 1968-69. In that year the four major construction types (*i.e.* brick, brick veneer, timber, asbestos-cement sheeting) constituted more than 99 per cent of all house building (in the six State capital cities) for which indexes have been prepared.

Price series used in the index relate to specified standards of each commodity and are obtained in all State capital cities from representative suppliers of materials used in house building. In the main they are collected as at the mid-point of the month to which the index refers.

The index has been compiled for each month from July 1966 and for the financial years from 1966-67. Figures are published to one decimal place to avoid distortions that would occur in rounding off the index numbers to the nearest whole number.

The separate city indexes measure price movements in each State capital city individually. They enable comparisons to be drawn between capitals as to differences in degree of price movement from period to period, but not as to differences in price level.

Further information concerning the method of compiling the index, as well as detailed group index numbers for each State capital city, is given in the annual *Labour Report* and the monthly publication, *Wholesale Price Indexes—Price Index of Materials used in House Building*, both of which are issued by the Commonwealth Statistician, Canberra.

The next two tables show the separate group index numbers and the 'All groups' index numbers, for Perth and for the six State capital cities combined, for the years 1966-67 to 1971-72.

## WHOLESALE PRICE INDEX OF MATERIALS USED IN HOUSE BUILDING

GROUP INDEX NUMBERS—PERTH  
(Base of each Index: Year 1966-67 = 100·0)

Group	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72
Concrete mix, cement and sand .....	100·0	102·3	102·8	105·3	110·6	117·2
Cement products .....	100·0	104·5	106·5	109·1	113·8	121·9
Clay bricks, tiles, etc. ....	100·0	103·5	106·2	111·4	118·5	129·5
Timber, board and joinery ....	100·0	105·8	107·5	111·1	115·5	121·3
Steel products .....	100·0	101·6	106·2	110·8	115·5	128·8
Other metal products .....	100·0	105·3	107·5	118·4	115·4	119·7
Plumbing fixtures, etc. ....	100·0	101·3	102·7	108·1	109·0	114·6
Electrical installation materials .....	100·0	103·3	105·2	115·1	115·5	120·7
Installed appliances .....	100·0	101·4	101·1	102·6	102·8	107·5
Plaster and plaster products .....	100·0	103·0	107·1	109·4	109·8	110·6
Miscellaneous materials .....	100·0	103·5	104·7	107·7	110·2	117·7
All groups .....	100·0	104·0	105·9	110·3	113·9	121·1

**WHOLESALE PRICE INDEX OF MATERIALS USED IN HOUSE BUILDING**  
**GROUP INDEX NUMBERS—SIX STATE CAPITAL CITIES COMBINED (a)**  
 (Base of each Index: Year 1966-67 = 100·0)

Group	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72
Concrete mix, cement and sand .....	100·0	101·6	103·8	107·1	113·4	121·2
Cement products .....	100·0	102·8	107·0	112·6	121·8	132·0
Clay bricks, tiles, etc. ....	100·0	103·6	107·8	112·4	118·0	124·5
Timber, board and joinery ....	100·0	103·0	108·6	113·5	118·5	124·8
Steel products .....	100·0	101·9	104·8	110·0	115·0	127·9
Other metal products .....	100·0	103·9	106·3	111·8	112·4	118·5
Plumbing fixtures, etc. ....	100·0	101·7	102·0	108·7	113·6	122·6
Electrical installation materials .....	100·0	103·3	105·2	115·8	115·0	120·2
Installed appliances .....	100·0	100·0	99·7	102·2	103·8	107·4
Plaster and plaster products .....	100·0	101·7	103·0	105·1	109·4	116·9
Miscellaneous materials .....	100·0	102·9	104·5	107·4	111·0	116·4
All groups .....	100·0	102·7	106·3	110·9	115·7	122·7

(a) Weighted average.

**WHOLESALE PRICE INDEX OF MATERIALS USED IN HOUSE BUILDING**  
**'ALL GROUPS' INDEX NUMBERS**

(Base of each Index: Year 1966-67 = 100·0)

NOTE. The separate city indexes measure price movements within each city individually. They enable comparisons to be drawn between cities as to differences in degree of price movement, but not as to differences in price level.

City	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72
Sydney .....	100·0	103·4	109·3	115·2	119·8	126·1
Melbourne .....	100·0	101·3	103·6	107·2	112·3	118·9
Brisbane .....	100·0	103·4	105·6	109·4	115·2	124·8
Adelaide .....	100·0	102·1	107·0	112·4	116·7	124·8
Perth .....	100·0	104·0	105·9	110·3	113·9	121·1
Hobart .....	100·0	101·8	104·1	107·7	114·3	120·7
Weighted average of six State capital cities .....	100·0	102·7	106·3	110·9	115·7	122·7

**Other Building.** The Wholesale Price Index of Materials used in Building other than House Building is compiled by the Commonwealth Statistician and was first published in April 1969 (retrospectively to July 1966). Index numbers are produced monthly for each State capital city and for the six State capital cities combined.

The index measures changes in prices of selected materials used in the construction of buildings other than houses and 'low-rise' flats (in general, those up to three storeys). Its composition is in accordance with the materials usage in actual building projects which were selected as representative for the purpose. The building 'use-types' (e.g. office building, factory, etc.) directly represented are 'high-rise' flats (in general, those of more than three storeys); offices; factories; health buildings (i.e. hospitals, nurses' quarters, clinics, etc.); education buildings (i.e. schools, universities, kindergartens, etc.); and commercial premises including hotels, hostels, etc., shops, and other business premises. The index includes seventy-two items, which are combined in eleven groups as shown in the next table.

Although the selected materials (or many of them) are also used in house (and low-rise flat) building, in building repair, maintenance and alteration work, and in 'engineering construction' work (e.g. projects such as roads, dams, bridges and the like), the weighting pattern of the index, being designed for the specific purpose mentioned earlier, is not applicable to these other activities of the Construction industry. In addition, since the weights are based on an average materials usage over the stated range of building use-types, the index is not necessarily applicable to any specific building or any of the separate use-types.

The reference base of the index is the year 1966-67 = 100·0. The index is a fixed-weights index and is calculated by the method known as 'the weighted arithmetic mean of price relatives'. The items and weights were derived from reported values of each

material used in selected representative buildings constructed in or about the year 1966-67. The selection took account of building use-type and construction characteristics (*e.g.* type of frame, wall, floor, etc.) within use-types.

A single weighting pattern, relating to the whole of Australia, is applied (with minor exceptions) to local price measures in calculating indexes for each State capital city. The index for the six State capital cities combined is a weighted average of individual city indexes. The relative weighting of the capitals is in proportion to the estimated value on completion of building other than house building in the separate States during the three years ended June 1967.

Price series used in the index relate to specified standards of each commodity and are obtained in all State capital cities from representative suppliers of materials used in building. In the main they are collected as at the mid-point of the month to which the index refers.

The index has been compiled for each month from July 1966 and for the financial years from 1966-67. Figures are published to one decimal place to avoid distortions that would occur in rounding off the index numbers to the nearest whole number.

The separate city indexes measure price movements in each State capital city individually. They enable comparisons to be drawn between capitals as to differences in degree of price movement from period to period, but not as to differences in price level.

Further information concerning the method of compiling the index, as well as detailed group index numbers for each State capital city, is given in the annual *Labour Report* and the monthly publication, *Wholesale Price Indexes—Price Index of Materials used in Building other than House Building*, both of which are issued by the Commonwealth Statistician, Canberra.

**WHOLESALE PRICE INDEX OF MATERIALS USED IN BUILDING  
OTHER THAN HOUSE BUILDING—GROUP INDEX NUMBERS**  
(Base of each Index: Year 1966-67 = 100.0)

Group	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72
<b>PERTH</b>						
Concrete mix, cement, sand, etc. ....	100.0	100.6	101.4	102.8	107.0	113.6
Cement products ....	100.0	104.3	108.1	111.3	118.3	119.8
Bricks, stone, etc. ....	100.0	103.0	106.2	111.4	119.0	128.8
Timber, board and joinery....	100.0	104.1	108.0	111.3	115.4	119.6
Steel and iron products ....	100.0	101.7	104.2	107.1	112.9	125.1
Aluminium products ....	100.0	99.7	101.8	102.6	105.8	115.0
Other metal products ....	100.0	105.7	106.4	127.0	117.4	114.4
Plumbing fixtures ....	100.0	101.7	103.4	110.8	112.7	118.3
Miscellaneous materials ....	100.0	102.7	103.9	107.8	111.8	119.2
Electrical installation materials (a) ....	100.0	100.9	102.1	112.2	110.9	114.7
Mechanical services components (b) ....	100.0	101.4	107.5	111.5	118.7	127.3
<b>All groups ....</b>	<b>100.0</b>	<b>102.0</b>	<b>104.7</b>	<b>108.9</b>	<b>113.3</b>	<b>121.3</b>

**SIX STATE CAPITAL CITIES COMBINED (c)**

Concrete mix, cement, sand, etc. ....	100.0	101.5	103.5	106.9	113.0	120.6
Cement products ....	100.0	102.2	106.8	111.7	118.0	126.1
Bricks, stone, etc. ....	100.0	103.7	108.2	112.6	118.6	124.2
Timber, board and joinery....	100.0	103.0	107.2	111.2	117.0	123.4
Steel and iron products ....	100.0	102.3	106.1	110.1	115.8	125.4
Aluminium products ....	100.0	101.4	103.9	107.4	113.0	119.3
Other metal products ....	100.0	105.9	106.8	126.3	121.4	120.6
Plumbing fixtures ....	100.0	102.8	103.3	113.7	121.3	134.3
Miscellaneous materials ....	100.0	102.3	103.2	105.8	110.3	116.9
Electrical installation materials (a) ....	100.0	100.9	102.1	112.2	110.9	114.7
Mechanical services components (b) ....	100.0	101.4	107.7	111.8	119.0	127.7
<b>All groups ....</b>	<b>100.0</b>	<b>102.2</b>	<b>105.6</b>	<b>110.5</b>	<b>115.5</b>	<b>123.0</b>

(a) Based on Sydney and Melbourne prices; see letterpress *Electrical Installation Materials* on page 516.  
based on Sydney and Melbourne prices.

(b) In the main  
(c) Weighted average.

# **WHOLESALE PRICE INDEX OF MATERIALS USED IN BUILDING OTHER THAN HOUSE BUILDING—'ALL GROUPS' INDEX NUMBERS**

(Base of each Index: Year 1966-67 = 100·0)

NOTE. The separate city indexes measure price movements within each city individually. They enable comparisons to be drawn between cities as to differences in degree of price movement, but not as to differences in price level.

City	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72
Sydney .....	100·0	102·6	106·5	111·7	116·4	122·4
Melbourne .....	100·0	101·7	105·0	109·8	115·1	123·9
Brisbane .....	100·0	102·2	105·1	110·3	116·4	124·4
Adelaide .....	100·0	101·8	105·0	109·4	113·9	122·7
Perth .....	100·0	102·0	104·7	108·9	113·3	121·3
Hobart .....	100·0	102·3	105·1	109·7	115·0	122·6
Weighted average of six State capital cities .....	100·0	102·2	105·6	110·5	115·5	123·0

**Electrical Installation Materials.** The Wholesale Price Index of Electrical Installation Materials is compiled by the Commonwealth Statistician and was first published in November 1964 (retrospectively to 1959-60).

The index measures changes in the aggregate cost of electrical installation materials used in building other than house building. Items in the index have been selected as representative of materials used in buildings such as hospitals, schools, factories and multi-storeyed commercial buildings and flats. These items are divided into three main groups for which separate indexes are compiled, in addition to an 'All groups' index.

The basis of pricing is the price to electrical contractors, delivered on site or into store in the metropolitan areas of Sydney and Melbourne. The price series used relate to specified standards of each commodity and are collected as at the mid-point of the month to which the index relates.

The reference base of the Wholesale Price Index of Electrical Installation Materials is the year 1959-60 = 100·0. In general, the weights used in compiling the index were derived from information relating to the values of materials used in selected representative projects in Sydney and Melbourne during the three years 1960-61 to 1962-63. Figures are published to one decimal place to avoid distortions that would occur in rounding off the index numbers to the nearest whole number.

Index numbers are issued monthly by the Commonwealth Statistician, Canberra in the publication *Wholesale Price Indexes—Price Index of Electrical Installation Materials*.

Annual index numbers for each group of items and for 'All groups' are given in the following table.

## **WHOLESALE PRICE INDEX OF ELECTRICAL INSTALLATION MATERIALS GROUP INDEX NUMBERS**

(Base of each Index: Year 1959-60 = 100·0)

Year	Group			All groups
	Conductors	Conduit and accessories	Switch-board and switch-gear material	
1959-60 .....	100·0	100·0	100·0	100·0
1960-61 .....	99·5	102·3	100·9	100·7
1961-62 .....	98·7	102·8	99·8	100·1
1962-63 .....	96·8	103·6	100·5	99·8
1963-64 .....	93·2	103·7	100·8	98·5
1964-65 .....	110·6	104·6	105·2	107·2
1965-66 .....	105·8	104·2	106·6	105·7
1966-67 .....	120·2	105·8	109·2	112·8
1967-68 .....	119·9	106·0	112·5	113·8
1968-69 .....	119·5	107·3	115·3	115·0
1969-70 .....	142·1	109·6	120·1	126·2
1970-71 .....	128·4	112·8	129·2	124·8
1971-72 .....	126·7	120·9	137·7	129·1

## STATISTICAL SUMMARY FROM 1829

In the next twenty-one pages, a historical summary of some of the more important statistics relating to Western Australia is shown. This is intended to present a general picture of the development of the State, with details being given (wherever they are available) for the year 1829, for every tenth year in the period 1830-1910, and for each single year from 1911. Figures for the period 1901-1909 have been omitted from the tables in several instances owing to insufficient space. In these cases, the figures are available, if required, from the *Western Australian Year Book*, No. 7—1968 and earlier issues, and the *Statistical Register of Western Australia*.

## ESTIMATED POPULATION, NATURAL INCREASE AND MIGRATION (a)

NOTE. A line drawn across a column indicates a break in continuity in the series. Figures above the line exclude full-blood Aborigines; those below the line refer to total population, including Aborigines. See also NOTE on page 122.

Year	Population at 31 December			Population increase				Mean population		Population of Perth Statistical Division (f)
	Males	Females	Persons	Recorded natural increase (b)	Estimated net migration (c)	Total increase (d)		Year ended—		
						Number	Per cent (e)	30 June	31 December	
										(000)
1829 ....	769	234	1,003	(g)	(g)	(g)	(g)	(g)		
1830 ....	877	295	1,172	(g)	(g)	123	16.85	(g)		
1840 ....	1,434	877	2,311	34	123	157	7.29	(g)		
1850 ....	3,576	2,310	5,886	132	1,109	1,241	26.72	(g)		(g)
1860 ....	9,597	5,749	15,346	379	130	509	3.43	(g)	15,092	
1870 ....	15,511	9,624	25,135	475	7	482	1.96	(g)	24,894	
1880 ....	16,985	12,576	29,561	551	129	422	1.45		29,350	
1890 ....	28,854	19,648	48,502	1,021	1,821	2,842	6.22		47,081	20
1900 ....	110,088	69,879	179,967	3,214	6,495	9,709	5.70		175,113	73
1910 ....	157,971	118,861	276,832	4,845	6,312	11,157	4.20	266,686	271,019	115.7
1911 ....	167,993	125,930	293,923	5,168	11,923	17,091	6.17	278,043	286,712	121.4
1912 ....	173,897	131,724	305,621	5,354	6,344	11,698	3.98	294,364	301,040	126.5
1913 ....	180,534	139,401	319,935	6,284	8,030	14,314	4.68	307,145	313,383	132.9
1914 ....	178,978	143,111	322,089	6,161	4,007	2,154	0.67	319,014	322,668	133.7
1915 ....	170,890	145,773	316,663	6,025	11,451	5,426	1.68	322,996	321,247	133.3
1916 ....	159,237	147,643	306,880	5,478	15,261	9,783	3.09	317,867	313,066	135.6
1917 ....	157,532	149,306	306,838	5,113	5,155	42	0.01	308,756	306,339	142.3
1918 ....	159,865	150,318	310,183	4,273	928	3,345	1.09	306,804	308,198	145.6
1919 ....	174,981	152,879	327,860	3,347	14,330	17,677	5.70	311,835	319,955	155.7
1920 ....	176,895	154,428	331,323	4,761	1,298	3,463	1.06	327,152	330,023	167.0
1921 ....	178,968	157,580	336,548	4,327	898	5,225	1.58	331,973	334,084	171.0
1922 ....	184,471	161,073	345,544	4,964	4,032	8,996	2.67	337,269	341,375	178.1
1923 ....	191,131	165,728	356,859	4,924	6,391	11,315	3.27	345,891	350,772	191.8
1924 ....	197,676	170,648	368,324	5,038	6,427	11,465	3.21	356,751	363,152	199.9
1925 ....	202,554	174,973	377,527	4,870	4,333	9,203	2.50	368,525	372,970	203.0
1926 ....	206,797	178,436	385,233	4,951	2,755	7,706	2.04	376,933	380,930	208.4
1927 ....	215,851	184,046	399,897	5,089	9,575	14,664	3.81	385,780	392,071	216.2
1928 ....	225,072	189,549	414,621	5,064	9,660	14,724	3.68	399,777	407,576	222.4
1929 ....	231,361	195,276	426,637	5,121	6,895	12,016	2.90	414,488	420,756	229.0
1930 ....	232,868	198,742	431,610	5,426	453	4,973	1.17	425,785	429,079	235.1
1931 ....	232,397	201,289	433,686	4,868	2,792	2,076	0.48	431,022	432,347	239.9
1932 ....	233,049	203,271	436,320	4,250	1,616	2,634	0.61	433,596	435,041	238.9
1933 ....	234,744	205,898	440,642	4,084	238	4,322	0.99	436,798	438,780	232.1
1934 ....	236,140	207,589	443,729	3,725	638	3,087	0.70	440,736	442,354	234.3
1935 ....	238,739	210,884	449,623	4,001	1,893	5,894	1.33	444,275	446,874	237.7
1936 ....	240,827	213,373	454,200	4,249	328	4,577	1.02	449,728	452,294	241.0
1937 ....	244,050	216,492	460,542	4,544	1,798	6,342	1.40	454,532	457,328	244.4
1938 ....	246,943	219,741	466,684	4,907	1,235	6,142	1.33	460,642	463,808	247.7
1939 ....	249,065	223,315	472,380	4,696	1,000	5,696	1.22	466,896	469,780	252.2
1940 ....	248,734	225,342	474,076	4,598	2,902	1,696	0.36	472,060	473,397	255.5
1941 ....	246,842	226,371	473,213	4,906	5,769	863	0.18	474,180	473,988	260.0
1942 ....	246,816	229,839	476,655	3,791	349	3,442	0.73	474,833	476,619	265.6
1943 ....	246,389	231,875	478,264	5,137	3,528	1,609	0.34	476,989	476,745	272.3
1944 ....	249,301	235,474	484,775	5,857	654	6,511	1.36	478,271	481,498	281.2
1945 ....	251,590	238,498	490,088	5,418	105	5,313	1.10	484,720	487,510	289.0
1946 ....	255,310	241,663	496,973	7,277	392	6,885	1.40	489,982	492,771	297.9
1947 ....	261,653	247,109	508,762	8,119	3,670	11,789	2.37	497,006	502,951	307.3
1948 ....	268,304	253,695	521,999	8,246	4,991	13,237	2.60	508,747	514,621	315.8
1949 ....	280,273	263,911	544,184	8,721	13,464	22,185	4.25	521,932	532,603	331.4
1950 ....	294,758	277,891	572,649	9,170	19,295	28,465	5.23	545,134	557,878	351.7
1951 ....	304,454	285,885	590,339	9,506	8,184	17,690	3.09	570,346	580,317	362.8
1952 ....	316,700	296,235	612,935	10,204	12,392	22,596	3.83	589,887	600,615	378.1
1953 ....	326,372	305,371	631,743	10,790	8,018	18,808	3.07	611,191	621,034	390.1
1954 ....	334,342	314,365	648,707	10,564	6,400	16,964	2.69	630,705	639,963	402.2
1955 ....	343,838	324,771	668,609	11,244	8,658	19,902	3.07	648,222	657,323	416.8
1956 ....	350,333	330,935	681,268	11,344	1,315	12,659	1.89	666,898	674,459	427.4
1957 ....	356,195	339,039	695,234	11,627	2,339	13,966	2.05	680,949	687,448	438.9
1958 ....	361,441	345,755	707,196	11,177	785	11,962	1.72	693,568	699,915	449.3
1959 ....	366,253	352,438	718,691	11,614	1,119	11,495	1.63	705,869	711,737	459.5
1960 ....	372,665	358,368	731,033	11,229	1,113	12,342	1.72	717,316	722,900	470.3
1961 ....	384,773	370,440	755,213	11,349	2,571	13,920	1.90	729,770	737,596	482.7
1962 ....	395,891	381,357	777,248	11,254	10,499	22,035	2.92	755,770	766,205	500.3
1963 ....	407,024	391,871	798,895	11,314	10,068	21,647	2.79	777,413	788,457	517.8
1964 ....	417,023	401,098	818,121	10,256	8,705	19,226	2.41	798,824	808,300	534.0
1965 ....	427,330	410,918	838,248	9,912	9,963	20,127	2.46	817,157	826,481	550.9
1966 ....	440,913	423,180	864,093	10,292	15,553	25,845	3.08	837,290	849,189	571.8
1967 ....	458,438	438,550	896,988	11,244	21,651	32,895	3.81	863,539	879,815	597.7
1968 ....	479,938	457,862	937,800	12,073	28,739	40,812	4.55	896,761	915,757	629.2
1969 ....	500,378	476,242	976,620	13,404	25,416	38,820	4.14	935,985	955,660	659.7
1970 ....	520,174	493,878	1,014,052	14,075	23,357	37,432	3.83	975,063	994,201	689.6
1971 ....	537,781	511,116	1,048,897	16,433	18,412	34,845	3.44	1,013,455	1,031,614	714.0
1972 ....	544,918	520,845	1,065,763	14,736	2,130	16,866	1.61	1,046,627	1,056,508	734,600

(a) Estimates for the years 1966 to 1970 have been revised in accordance with the final results of the 1971 Census. (b) Excess of births over deaths, including deaths of defence personnel, whether in Australia or overseas, between September 1939 and June 1947. (c) Interstate and overseas. (d) Minus sign (—) denotes decrease. (e) The rates represent total increase in population during the year expressed as a proportion per cent of the population at the end of the previous year. (f) At 31 December. (g) Not available.

## VITAL STATISTICS

See NOTE at head of previous table.

Year	Marriages registered	Live births registered	Deaths registered (b)	Natural increase (c)	Rate per 1,000 of mean population (a)				Infant mortality	
					Marriages	Births	Deaths (b)	Natural increase (c)	Number (d)	Rate (e)
1840 ....	25	54	20	34	(f)	(f)	(f)	(f)	(f)	(f)
1850 ....	37	186	54	132	(f)	(f)	(f)	(f)	(f)	(f)
1860 ....	151	588	209	379	10·01	38·96	13·85	25·11	(f)	(f)
1870 ....	153	853	378	475	6·15	34·27	15·18	19·08	100	117·2
1880 ....	214	933	382	551	7·29	31·79	13·02	18·77	72	77·2
1890 ....	278	1,561	540	1,021	5·90	33·16	11·47	21·69	140	89·7
1900 ....	1,781	5,454	2,240	3,214	10·17	31·15	12·79	18·35	688	126·2
1910 ....	2,107	7,585	2,740	4,845	7·77	27·99	10·11	17·88	593	78·2
1911 ....	2,421	8,091	2,923	5,168	8·44	28·22	10·19	18·03	615	76·0
1912 ....	2,524	8,689	3,335	5,354	8·38	28·86	11·08	17·78	713	82·1
1913 ....	2,572	9,218	2,934	6,284	8·21	29·41	9·36	20·05	648	70·3
1914 ....	2,660	9,204	3,043	6,161	8·24	28·52	9·43	19·09	627	68·1
1915 ....	2,581	9,017	2,992	6,025	8·03	28·07	9·31	18·76	600	66·5
1916 ....	2,365	8,563	3,085	5,478	7·55	27·35	9·85	17·50	567	66·2
1917 ....	1,621	7,882	2,769	5,113	5·29	25·73	9·04	16·69	450	57·1
1918 ....	1,612	7,106	2,833	4,273	5·23	23·06	9·19	13·87	406	57·1
1919 ....	2,194	6,937	3,590	3,347	6·86	21·68	11·22	10·46	424	61·1
1920 ....	2,932	8,149	3,388	4,761	8·88	24·69	10·27	14·42	538	66·0
1921 ....	2,656	7,807	3,480	4,327	7·95	23·37	10·42	12·95	611	78·3
1922 ....	2,446	8,131	3,167	4,964	7·17	23·82	9·28	14·54	452	55·6
1923 ....	2,376	7,854	2,930	4,924	6·77	22·39	8·35	14·04	442	56·3
1924 ....	2,596	8,301	3,263	5,038	7·15	22·86	8·99	13·87	414	49·9
1925 ....	2,746	8,185	3,315	4,870	7·36	21·95	8·89	13·06	463	56·6
1926 ....	2,844	8,301	3,350	4,951	7·47	21·79	8·79	13·00	409	49·3
1927 ....	3,108	8,482	3,393	5,089	7·93	21·63	8·65	12·98	389	45·9
1928 ....	3,309	8,704	3,640	5,064	8·12	21·36	8·93	12·43	419	48·1
1929 ....	3,367	9,051	3,930	5,121	8·00	21·51	9·34	12·17	508	56·1
1930 ....	3,205	9,200	3,774	5,426	7·47	21·44	8·80	12·64	430	46·7
1931 ....	2,741	8,549	3,681	4,868	6·34	19·77	8·51	11·26	355	41·5
1932 ....	2,904	7,965	3,715	4,250	6·68	18·31	8·54	9·77	355	44·6
1933 ....	3,374	7,874	3,790	4,084	7·69	17·95	8·64	9·31	290	36·8
1934 ....	3,682	7,801	4,076	3,725	8·32	17·64	9·21	8·42	319	40·9
1935 ....	3,940	8,119	4,118	4,001	8·82	18·17	9·22	8·95	326	40·2
1936 ....	4,242	8,479	4,230	4,249	9·38	18·75	9·35	9·39	358	42·2
1937 ....	4,169	8,609	4,065	4,544	9·12	18·82	8·89	9·94	323	37·5
1938 ....	4,153	9,141	4,234	4,907	8·95	19·71	9·13	10·58	309	33·8
1939 ....	4,195	9,036	4,336	4,700	8·93	19·23	9·23	10·00	369	40·8
1940 ....	5,234	9,121	4,486	4,635	11·06	19·27	9·48	9·79	403	44·2
1941 ....	5,077	10,118	4,769	5,349	10·71	21·35	10·06	11·29	357	35·3
1942 ....	5,441	9,901	5,076	4,825	11·42	20·77	10·65	11·29	365	36·9
1943 ....	4,528	10,481	4,587	5,894	9·50	21·98	9·62	12·36	342	32·6
1944 ....	4,506	10,870	4,478	6,392	9·36	22·58	9·30	13·28	354	32·6
1945 ....	3,788	10,672	4,712	5,960	7·77	21·89	9·67	12·23	315	29·5
1946 ....	5,171	12,105	4,753	7,352	10·49	24·57	9·65	14·92	376	31·1
1947 ....	5,282	12,874	4,723	8,151	10·50	25·60	9·39	16·21	398	30·9
1948 ....	5,186	12,931	4,685	8,246	10·08	25·13	9·10	16·02	331	25·6
1949 ....	4,951	13,511	4,790	8,721	9·30	25·37	8·99	16·37	357	26·4
1950 ....	5,434	14,228	5,058	9,170	9·74	25·50	9·07	16·44	386	27·1
1951 ....	5,390	14,794	5,288	9,506	9·29	25·49	9·11	16·38	425	28·7
1952 ....	5,389	15,413	5,209	10,204	8·97	25·66	8·67	16·99	384	24·9
1953 ....	5,032	15,862	5,072	10,790	8·10	25·54	8·17	17·37	378	23·8
1954 ....	5,204	15,928	5,364	10,564	8·13	24·89	8·38	16·51	359	22·5
1955 ....	5,145	16,623	5,379	11,244	7·83	25·29	8·18	17·11	373	22·4
1956 ....	5,080	16,916	5,272	11,344	7·53	25·08	8·26	16·82	384	22·7
1957 ....	4,897	16,924	5,297	11,627	7·12	24·62	7·71	16·91	357	21·1
1958 ....	5,038	16,731	5,554	11,177	7·20	23·90	7·94	15·97	360	21·5
1959 ....	5,387	17,111	5,497	11,614	7·57	24·04	7·72	16·32	345	20·2
1960 ....	5,323	16,926	5,697	11,229	7·36	23·41	7·88	15·53	366	21·6
1961 ....	5,150	17,078	5,729	11,349	6·98	23·15	7·77	15·39	336	19·7
1962 ....	5,466	17,064	5,810	11,254	7·23	22·58	7·69	14·89	380	22·3
1963 ....	5,755	17,290	5,976	11,314	7·40	22·23	7·68	14·55	353	20·4
1964 ....	6,023	16,685	6,429	10,256	7·55	20·93	8·06	12·86	328	19·7
1965 ....	6,448	16,186	6,274	9,912	7·91	19·85	7·70	12·16	351	21·7
1966 ....	7,002	17,194	6,902	10,292	8·25	20·25	8·13	12·12	343	19·9
1967 ....	7,430	18,023	6,779	11,244	8·44	20·48	7·71	12·78	314	17·4
1968 ....	8,086	19,541	7,468	12,073	8·83	21·34	8·16	13·18	398	20·4
1969 ....	8,993	20,754	7,350	13,404	9·41	21·72	7·69	14·03	453	21·8
1970 ....	9,227	21,618	7,543	14,075	9·28	21·74	7·59	14·16	459	21·2
1971 ....	9,382	24,239	7,806	16,433	9·09	23·50	7·57	15·93	464	19·1
1972 ....	9,120	22,177	7,441	14,736	8·63	20·99	7·04	13·95	348	15·7

(a) Rates for the years 1966 to 1970 have been revised in accordance with the final results of the 1971 Census. (b) Excludes deaths of defence personnel, whether in Australia or overseas, between September 1939 and June 1947. (c) Excess of *Live births registered* over *Deaths registered*; see also note (b). (d) Deaths under one year of age; included in *Deaths registered*. (e) Per 1,000 live births. (f) Not available.

PUBLIC REVENUE AND EXPENDITURE: CONSOLIDATED REVENUE FUND  
(\$'000)

Year (a)	Revenue					Total revenue	Expenditure					Total expenditure
	Common-wealth funds	Public utilities	Departmental (b)	Taxation	Territorial (c)		Public utilities	Interest and sinking fund	Departmental			
									Education	Health	Other	
1840					5	34			n.a.			30
1850					4	38			n.a.			33
1860					35	140				3		123
1870	n.a.	n.a.	n.a.	n.a.	40	196	n.a.			7	n.a.	226
1880					72	360		40		19		409
1890					217	829		144		23		803
1900		2,612	182	244	380	5,751	1,863	880	138		198	5,231
1910	1,407	3,916	551	673	649	7,315	2,440	2,006	367		328	6,895
1911	1,139	4,417	573	650	802	7,701	2,704	2,092	404	315	1,713	7,469
1912	1,277	4,477	574	705	772	7,933	2,903	2,203	477	367	1,960	8,202
1913	1,271	5,339	712	787	776	9,193	3,594	2,416	553	412	2,047	9,574
1914	1,282	5,991	986	772	808	10,411	4,004	2,768	608	449	1,895	10,682
1915	1,263	5,513	753	744	793	10,281	3,814	3,093	625	492	1,559	11,413
1916	1,232	5,738	854	816	783	10,714	3,951	3,328	635	531	1,397	11,410
1917	1,189	5,279	931	805	660	9,154	3,913	3,532	668	561	1,561	10,554
1918	1,198	5,255	883	899	632	9,245	3,869	3,750	708	444	1,503	10,657
1919	1,171	5,362	962	1,258	690	9,890	4,131	3,946	732	482	1,602	11,194
1920	1,197	6,364	1,188	1,688	818	11,727	5,156	4,124	829	642	1,931	13,063
1921	1,188	7,517	1,618	1,911	875	13,579	6,290	4,459	980	590	2,231	14,953
1922	1,168	7,787	1,822	1,762	870	13,814	6,120	4,875	1,112	540	2,172	15,278
1923	1,166	8,000	2,092	1,975	807	14,415	5,847	5,150	1,126	538	2,100	15,226
1924	1,171	8,776	2,173	2,347	925	15,731	6,065	5,668	1,161	544	2,229	16,190
1925	1,176	9,154	2,576	2,448	1,004	16,763	6,195	6,193	1,171	587	2,191	16,880
1926	1,177	9,280	2,831	2,836	1,083	17,616	6,577	6,596	1,010	610	2,400	17,815
1927	2,306	9,941	3,274	2,423	1,102	19,502	6,958	6,590	1,294	604	3,351	19,445
1928	1,618	10,589	3,205	2,593	1,222	19,616	7,467	6,358	1,337	606	3,246	19,669
1929	1,623	10,772	3,312	2,740	1,029	19,896	7,885	6,671	1,358	634	3,278	20,448
1930	1,547	10,596	3,134	2,906	950	19,501	8,073	6,891	1,385	649	2,872	20,537
1931	1,547	9,228	3,279	2,269	678	17,374	6,654	7,243	1,346	486	3,950	20,215
1932	1,547	8,818	2,766	2,014	585	16,071	5,724	7,015	1,098	328	4,543	19,186
1933	1,947	8,873	2,701	2,257	558	16,664	5,682	7,009	1,108	333	3,761	18,392
1934	2,147	8,867	2,240	2,737	626	16,963	5,870	7,095	1,153	309	3,560	18,541
1935	2,413	9,837	1,562	3,804	812	18,663	6,391	7,100	1,225	326	3,342	18,997
1936	2,617	10,366	1,677	4,372	767	20,067	6,756	7,135	1,331	341	3,595	19,891
1937	2,013	10,633	1,727	4,807	773	20,371	7,247	7,237	1,432	381	4,024	21,113
1938	2,097	11,148	1,980	5,190	749	21,638	7,249	7,579	1,474	380	4,158	21,659
1939	2,087	11,159	1,786	5,728	634	21,899	7,857	7,779	1,514	401	3,992	22,340
1940	2,137	11,102	1,942	5,992	632	22,240	7,662	8,021	1,545	416	4,070	22,534
1941	2,247	11,366	1,916	6,255	638	22,864	7,534	8,114	1,568	421	4,262	22,842
1942	2,207	12,133	2,204	6,222	620	23,880	8,282	8,204	1,662	436	4,293	23,877
1943	7,852	13,518	2,497	1,330	634	26,303	9,377	8,183	1,627	458	5,564	26,254
1944	7,935	13,626	2,868	1,553	700	27,178	9,870	8,185	1,747	506	5,780	27,102
1945	8,044	13,618	3,402	1,715	697	27,908	10,064	8,251	1,778	485	6,261	27,899
1946	9,960	13,303	2,519	1,936	709	28,815	10,825	8,168	2,005	1,010	5,621	28,815
1947	11,461	11,769	3,105	2,138	1,053	29,962	10,866	8,012	2,447	1,369	5,910	30,057
1948	14,515	13,242	3,575	2,354	1,202	35,421	13,996	8,089	3,298	1,841	7,280	36,125
1949	17,136	15,032	4,564	2,683	1,106	41,121	16,720	8,215	3,519	2,613	9,942	42,756
1950	22,975	17,792	5,733	3,240	1,225	51,622	20,237	8,508	4,160	3,633	13,096	51,574
1951	25,343	19,085	5,911	3,912	1,230	56,312	21,974	8,994	5,269	4,465	13,180	55,994
1952	29,923	24,335	6,863	4,633	1,300	67,910	27,490	9,741	7,262	6,269	15,696	69,094
1953	39,056	22,385	8,557	5,247	1,513	77,768	32,044	10,611	8,686	6,926	17,639	78,784
1954	38,342	29,860	8,378	6,468	1,929	86,292	35,234	12,147	9,503	7,675	18,797	86,497
1955	38,759	32,645	9,433	7,258	2,014	91,440	36,089	13,857	11,217	8,026	19,838	92,408
1956	43,373	33,969	9,779	8,036	2,498	99,225	39,184	15,451	12,482	9,344	21,501	102,886
1957	46,759	37,133	12,548	9,027	2,433	108,662	42,022	17,043	13,636	10,067	33,645	112,847
1958	51,808	34,525	13,640	10,729	2,516	114,108	40,103	19,303	15,172	11,026	25,572	116,355
1959	55,496	36,080	14,522	10,368	2,783	120,136	40,317	20,844	15,819	11,967	29,244	123,506
1960	58,871	38,575	15,696	11,834	2,878	128,776	42,418	23,053	17,282	13,565	29,861	131,587
1961	65,519	40,830	16,372	12,079	2,797	138,665	41,072	24,628	19,541	15,018	35,160	141,075
1962	73,430	42,456	16,549	12,926	3,283	149,852	42,097	27,250	21,417	14,935	40,131	151,780
1963	75,847	43,559	18,134	14,762	3,501	157,182	42,267	29,980	22,850	16,073	41,254	158,687
1964	78,988	45,376	20,948	17,604	3,751	167,888	44,247	31,771	25,880	18,705	43,430	170,681
1965	88,565	39,778	26,712	19,512	4,107	180,143	43,360	34,669	29,133	21,160	49,401	184,840
1966	103,459	45,683	28,753	22,574	4,598	206,655	47,106	37,926	34,016	23,086	56,869	206,665
1967	106,748	52,787	31,461	27,536	7,655	228,146	53,182	41,662	36,746	26,429	61,512	228,174
1968	112,617	56,226	33,135	34,916	11,845	250,738	60,728	43,864	41,224	29,294	65,362	249,909
1969	126,621	54,407	33,035	41,602	17,301	275,081	64,016	47,083	46,441	33,613	74,822	276,137
1970	141,326	62,921	36,905	50,865	23,633	318,189	71,166	51,427	55,839	41,343	87,660	318,901
1971	170,396	68,350	45,583	48,434	32,187	367,252	79,717	54,178	66,341	52,575	107,129	371,620
1972	180,132	73,446	54,131	78,490	34,992	423,999	82,410	62,029	82,472	59,862	125,260	424,890

n.a. denotes 'not applicable' or 'not available'.

(a) From 1900, year ended 30 June.  
(b) Reimbursements, fees, etc.  
(c) Revenue from sales, leases, licences and royalties relating to land, mining and timber.

NET EXPENDITURE FROM LOAN FUNDS; PUBLIC DEBT  
(\$'000)

Year (a)	Net expenditure from loan funds on public works and services (b)							Public debt (at end of year)	
	Railways, tramways and omnibuses	Electricity supply	Harbours, rivers, light- houses, etc.	Water supplies, sewerage, drainage and irrigation	Public buildings	Other	Total	Gross amount outstand- ing	Sinking fund
1860	....	....	....	....	....	....	....	4	....
1870	....	....	....	....	....	....	....	....	....
1880	(c)	549	(d)	38	....	(e)	(d)	802	722
1890	....	3	....	6	(f)	76	....	32	2,735
1900	....	302	....	395	....	....	110	1,757	23,349
1910	....	908	....	174	....	152	626	2,058	46,575
1911	(g)	1,818	(g)	67	(g)	307	(g)	816	3,114
1912	....	2,641	....	372	....	250	....	1,163	4,688
1913	....	3,988	....	301	....	790	....	1,627	6,846
1914	....	2,333	....	180	....	664	....	2,501	5,766
1915	....	1,386	....	331	....	496	....	2,635	5,010
1916	....	895	....	218	....	331	....	1,643	3,169
1917	....	675	....	244	....	153	....	592	1,710
1918	....	416	....	170	....	136	....	1,351	2,108
1919	....	375	....	140	....	93	....	1,448	2,099
1920	....	242	....	204	....	94	....	4,765	5,327
1921	....	398	....	237	....	427	....	4,061	5,173
1922	....	1,207	....	183	....	435	....	2,996	4,910
1923	....	1,359	....	240	....	402	....	4,740	6,779
1924	....	1,303	....	278	....	871	....	5,244	7,874
1925	....	1,243	....	362	....	1,301	....	5,110	8,198
1926	....	1,540	....	439	....	1,357	....	4,667	8,157
1927	....	1,559	....	382	....	884	....	4,901	7,960
1928	....	1,902	....	530	....	1,132	....	4,577	8,397
1929	....	1,825	....	528	....	1,092	....	4,255	7,882
1930	....	1,819	....	529	....	610	....	4,226	7,291
1931	....	878	....	257	....	420	Cr. (i)	1,457	3,012
1932	....	263	....	155	....	1,152	....	1,055	2,624
1933	....	374	....	485	....	1,355	....	1,838	4,121
1934	....	659	....	492	....	1,606	....	2,344	5,297
1935	....	997	....	610	....	2,155	....	1,103	5,076
1936	....	946	....	602	....	2,487	....	700	4,903
1937	....	491	....	352	....	2,303	....	741	4,064
1938	....	950	....	201	....	1,843	....	1,144	4,321
1939	....	441	....	184	....	1,777	....	640	3,272
1940	....	200	....	104	....	1,615	....	974	3,624
1941	....	214	....	18	....	152	....	480	2,819
1942	....	110	....	25	....	111	....	437	1,359
1943	....	157	....	92	....	133	....	55	217
1944	....	49	....	31	Cr.	143	....	75	166
1945	....	140	....	11	....	61	....	150	241
1946	....	142	....	208	....	75	....	473	451
1947	....	535	....	332	....	173	....	1,453	772
1948	....	676	....	1,471	....	316	....	1,388	1,097
1949	....	913	....	2,131	....	449	....	1,626	1,099
1950	....	4,496	....	4,691	....	804	....	2,002	1,357
1951	....	3,723	....	6,591	....	1,164	....	4,091	2,003
1952	....	15,198	....	6,684	....	2,694	....	4,803	2,729
1953	....	13,533	....	179	....	2,422	....	4,858	5,432
1954	....	11,295	....	1,406	....	2,328	....	3,939	3,144
1955	....	9,752	....	1,410	....	1,920	....	5,661	3,993
1956	....	6,139	....	2,049	....	1,638	....	5,516	4,187
1957	....	5,519	....	4,200	....	950	....	7,119	5,599
1958	....	4,209	....	2,480	....	1,398	....	7,694	5,891
1959	....	5,711	....	2,200	....	1,428	....	8,395	7,410
1960	....	4,953	....	1,553	....	1,373	....	9,547	8,723
1961	....	4,221	....	400	....	1,966	....	10,314	10,479
1962	....	5,432	....	300	....	2,587	....	10,952	12,032
1963	....	6,204	....	500	....	2,438	....	10,770	13,420
1964	....	7,496	....	....	....	3,028	....	10,537	15,630
1965	....	6,800	....	794	....	2,822	....	10,957	19,948
1966	....	7,628	....	1,434	....	2,583	....	12,667	19,908
1967	....	9,068	....	2,427	....	1,746	....	13,642	18,230
1968	....	7,750	....	4,542	....	2,402	....	14,552	18,816
1969	....	10,547	....	5,679	....	1,190	....	12,560	20,116
1970	....	6,331	....	4,566	....	2,055	....	13,330	24,627
1971	....	7,194	....	27	....	2,202	....	15,176	25,549
1972	....	5,919	....	3,666	....	1,902	....	18,369	23,994

(a) From 1900, year ended 30 June. Sinking fund at 31 March from 1900 to 1928. (b) From 1928 includes expenditure from Loan Suspense Account. (c) Total amount for the years 1877 to 1881. (d) Total amount for the years 1872 to 1881. (e) Not available. (f) Includes expenditure prior to 1890. (g) Including readjustments for previous years. (h) Reduction due to operation of Financial Agreement Act of 1928. (i) Less than \$500.

## NATIONAL WELFARE FUND: EXPENDITURE IN WESTERN AUSTRALIA FROM INCEPTION

NOTE. The National Welfare Fund was established, with effect from 1 July 1943, in terms of the *National Welfare Fund Act 1943*. During the first two years of operation, only maternity allowances and funeral benefits were paid from the Fund. Expenditure on these items in Western Australia was \$341,014 in 1943-44 (maternity allowances \$322,710, funeral benefits \$18,304) and \$374,302 in 1944-45 (maternity allowances \$348,164, funeral benefits \$26,138). Under the provisions of the *National Welfare Fund Act 1945*, effective from 1 July 1945, expenditure on age pensions (introduced in 1909), invalid pensions (1910), widows' pensions (1942), and child endowment (1941) became a charge on the Fund. Unemployment, sickness, and special benefits came into operation on 1 July 1945. Hospital benefit was first paid in 1945-46 (in respect of public hospitals from 1 January 1946, and private hospitals from 18 February 1946).

(\$'000)

Year ended 30 June	Social services				Total expend- iture on social services	Health services					Total expend- iture on health services (c)	Total expend- iture from National Welfare Fund (d)
	Pensions		Child endow- ment (a)	Un- employ- ment, sickness, and special benefits		Hospital and nursing home benefits	Medical benefits	Pharma- ceutical benefits	Tuber- culosis cam- paign (b)	Milk for school children		
	Age and invalid	Wid- ows*										
1946	....	3,721	405	2,570	144	7,186	248	....	....	....	248	7,435
1947	....	4,010	391	2,958	339	8,165	716	....	....	20	736	8,901
1948	....	5,131	484	2,898	203	9,150	730	....	....	2	732	9,883
1949	....	5,842	561	3,620	165	10,644	979	....	24	22	1,025	11,670
1950	....	6,176	594	4,607	306	12,215	1,000	....	69	148	1,244	13,477
1951	....	6,877	632	6,539	242	14,882	1,044	14	496	473	2,047	16,955
1952	....	8,213	733	6,956	118	16,620	1,023	151	1,004	627	2,970	19,625
1953	....	9,684	808	8,106	444	19,681	1,102	237	1,108	1,201	3,867	23,584
1954	....	10,750	870	7,766	399	20,435	1,314	590	1,396	1,214	4,763	25,235
1955	....	11,519	902	8,138	286	21,516	1,491	1,156	1,537	967	5,432	26,967
1956	....	13,363	1,062	9,368	374	24,887	1,559	1,461	1,626	1,017	5,958	30,845
1957	....	14,508	1,225	8,923	896	26,281	1,544	1,590	1,624	1,123	6,222	32,503
1958	....	16,154	1,415	9,143	1,265	28,725	1,858	1,746	2,006	1,041	6,983	35,708
1959	....	17,244	1,601	10,396	1,673	31,681	2,571	1,917	2,794	1,272	8,948	40,679
1960	....	19,833	1,827	9,720	1,504	33,652	3,351	2,241	3,178	1,163	10,427	44,079
1961	....	21,586	2,104	11,402	1,309	37,180	3,817	2,339	3,630	1,111	11,386	48,812
1962	....	24,344	2,371	10,205	1,887	39,575	3,996	2,455	4,809	873	12,695	52,270
1963	....	25,582	2,377	10,485	2,006	41,203	4,189	2,657	5,161	885	13,501	54,705
1964	....	27,373	3,115	12,994	1,978	46,223	4,705	2,808	5,242	839	14,238	60,460
1965	....	29,413	3,463	13,406	1,401	48,450	4,987	3,716	5,294	822	15,486	64,635
1966	....	30,760	3,602	13,624	872	49,648	5,286	4,345	5,870	758	16,906	67,316
1967	....	33,794	4,011	15,498	855	55,001	5,881	4,944	6,719	600	18,998	74,666
1968	....	36,418	4,346	14,845	758	57,295	6,598	5,265	7,117	862	20,860	78,894
1969	....	39,404	4,786	15,540	795	61,729	7,401	5,600	8,702	645	23,340	85,828
1970	....	44,637	5,600	17,894	1,039	70,725	9,153	6,373	9,836	828	27,262	98,577
1971	....	48,979	6,172	16,423	1,699	75,279	10,256	9,782	11,215	800	33,246	109,216
1972	....	57,374	7,180	18,188	4,298	89,623	14,492	13,800	12,418	907	43,032	133,770

(a) A number of endowments are paid every twelve weeks. Although in most years there are four such payments, there are some years in which five payments are made. (b) Comprises amounts paid to individuals in the form of allowances and to the State Government as reimbursements for expenditure incurred in the provision and maintenance of facilities. (c) Excludes some relatively minor expenditures not allocable among States. In 1970-71 such costs, for Australia as a whole, amounted to \$2.69 million and comprised \$1.05 million for the supply of blood products; radio-active isotopes, \$0.62 million; hearing aids for school children and pensioners, \$0.44 million; poliomyelitis vaccine, \$0.16 million; and other vaccines, \$0.42 million. (d) See footnote (c).

## SOCIAL SERVICE BENEFICIARIES AND REPATRIATION PENSIONS: WESTERN AUSTRALIA

Year ended 30 June	Social service benefits							Repatriation pensions				
	Pensioners (a)				Endowed children (a)			Un-employment- benefit (h)	War		Service	
	Age (b) (c)	Invalid (b) (c) (d)	Total	Widow	Under 16 years of age (e) (f)	Students (g)	Total		Number (a) (i)	Amount paid \$'000	Number (a) (j)	Amount paid \$'000
1910	2,361	n.a.	2,361									
1911	2,976	179	3,155									
1912	3,224	374	3,598						n.a.	n.a.		
1913	3,484	574	4,058									
1914	3,909	766	4,675									
1915	4,153	935	5,088									
1916	4,199	1,057	5,256						521	17		
1917	4,353	1,200	5,553						3,654	148		
1918	4,401	1,313	5,714						9,836	469		
1919	4,518	1,500	6,018						17,488	922		
1920	4,791	1,788	6,579						22,311	1,087		
1921	5,002	2,004	7,006						23,235	1,501		
1922	5,316	2,022	7,338						23,561	1,468	n.a.	n.a.
1923	5,599	2,063	7,662						23,878	1,430		
1924	6,099	2,250	8,349						24,301	1,430		
1925	6,448	2,392	8,840						25,138	1,439		
1926	6,940	2,632	9,572						25,927	1,521		
1927	7,326	2,699	10,025	n.a.	n.a.		n.a.	n.a.	26,689	1,535		
1928	7,713	2,866	10,579						27,495	1,545		
1929	8,256	3,029	11,285						28,084	1,575		
1930	8,913	3,284	12,197						28,407	1,586		
1931	10,461	3,554	14,015						28,063	1,575		
1932	11,458	3,790	15,248						26,345	1,397		
1933	11,097	3,827	14,924						25,475	1,259		
1934	11,854	4,122	15,976						24,940	1,255		
1935	12,840	4,290	17,130						24,436	1,304		
1936	13,740	4,482	18,222						23,882	1,326	375	5
1937	14,453	4,634	19,087			n.a.			22,886	1,361	923	47
1938	15,332	4,863	20,195						23,375	1,379	1,204	73
1939	16,278	5,116	21,394						22,617	1,394	1,454	92
1940	19,024	3,454	22,478						21,449	1,370	1,489	103
1941	19,423	3,425	22,848						20,388	1,343	1,545	112
1942	19,156	3,557	22,713		68,533		68,533		19,757	1,337	1,561	129
1943	18,575	3,580	22,155	2,596	65,777		65,777		20,245	1,506	1,454	147
1944	18,109	3,443	21,552	2,796	66,938		66,938		22,511	1,884	1,369	144
1945	17,713	3,414	21,127	2,894	68,316		68,316		27,686	2,105	1,343	144
1946	18,797	3,538	22,335	2,870	69,325		69,325	422	37,921	2,530	1,403	173
1947	21,162	4,002	25,164	2,570	71,968		71,968	1,095	42,127	2,856	1,580	192
1948	22,210	4,387	26,597	2,719	75,186		75,186	409	44,818	3,000	1,715	290
1949	23,739	4,340	28,079	2,883	79,693		79,693	126	46,785	3,516	1,832	301
1950	24,316	4,294	28,610	2,876	133,557		133,557	267	48,878	3,776	1,953	331
1951	24,317	4,184	28,501	2,789	172,186		172,186	60	51,027	4,545	2,022	369
1952	24,782	3,964	28,746	2,676	183,257		183,257	57	52,071	5,429	2,136	449
1953	25,679	3,996	29,675	2,686	192,991		192,991	844	52,607	5,843	2,343	556
1954	27,248	4,101	31,349	2,753	202,098		202,098	427	53,352	6,174	2,468	605
1955	28,833	4,191	33,024	2,848	212,025		212,025	157	54,117	6,877	2,692	723
1956	30,244	4,425	34,669	3,015	220,792		220,792	473	54,427	6,902	3,648	964
1957	32,192	5,039	37,231	3,243	230,922		230,922	1,940	54,987	7,169	4,306	1,095
1958	33,124	5,519	38,643	3,542	237,732		237,732	2,330	55,251	8,017	4,672	1,395
1959	34,629	5,941	40,570	3,833	245,090		245,090	2,852	56,008	7,893	5,009	1,552
1960	36,575	6,152	42,727	4,039	250,449		250,449	2,512	56,644	8,471	5,344	1,751
1961	37,656	6,945	44,601	4,348	257,037		257,037	2,154	57,123	9,310	6,101	2,102
1962	39,104	7,826	46,930	4,570	266,067		266,067	2,932	57,947	10,177	7,115	2,687
1963	40,661	8,170	48,831	4,486	270,736		270,736	2,674	57,580	10,527	7,526	2,927
1964	41,819	8,306	50,125	4,734	275,910	7,865	283,775	2,677	57,047	11,564	7,754	3,177
1965	42,706	8,615	51,321	4,926	279,642	8,844	288,486	1,679	55,920	11,447	7,780	3,320
1966	43,876	8,575	52,451	5,071	286,534	8,769	295,303	785	54,560	12,637	7,757	3,571
1967	45,741	8,307	54,048	5,228	295,628	10,697	306,325	718	52,967	11,889	7,674	3,612
1968	48,850	8,310	57,160	5,482	306,492	10,999	317,491	608	51,193	11,934	7,586	3,777
1969	50,432	8,413	58,845	5,559	318,147	11,446	329,593	524	49,526	13,061	7,298	4,071
1970	56,017	7,933	63,950	6,086	322,058	11,539	333,597	474	47,993	12,811	7,783	4,491
1971	58,224	8,155	66,379	6,392	333,848	13,737	347,585	872	46,514	13,140	7,767	4,769
1972	60,523	8,485	69,008	6,795	343,455	15,452	358,907	2,808	45,079	14,413	7,864	5,298

n.a. denotes 'not applicable'.

(a) Number at 30 June. (b) Figures for dates prior to 30 June 1957 exclude pensioners in benevolent homes. (c) During 1939-40 all invalid pensions in force were specially reviewed, and at 30 June 1940 all those pensioners who had become qualified for age pension by reason of age and residence were transferred to the age pensioner category. (d) Figures from 30 June 1968 include recipients of sheltered employment allowances. (e) Endowed children in institutions are excluded from figures shown for dates prior to 30 June 1957; at that date there were 3,347 such children. (f) From the commencement of the child endowment scheme on 1 July 1941 until 30 June 1950, endowment was not paid in respect of the first or only child of a family. (g) Persons aged 16 and under 21 years who are receiving full-time education at a school, college or university and are not in employment or engaged in work on their own account. (h) Average of number of persons on benefit at end of each week. (i) Includes pensions paid to incapacitated ex-servicemen and to the dependants of incapacitated or deceased ex-servicemen; particulars of ex-servicemen are included where relevant. (j) Comprises pensions paid to ex-servicemen and ex-servicewomen, and their dependants.

## BANKING AND INSURANCE

Year	Trading banks			Savings banks (c)		Insurance				
	De-positors' balances (a)	Loans (other than loans to authorised dealers in the short-term money market), advances and bills discounted (a)	Weekly debits to customers' accounts (b)	Operative accounts at end of year	Depositors' balances at end of year	Life		General (e) (f)		
						Sum insured under policies existing at end of year (d)		Premiums	Claims	
						Ordinary (including super-annuation)	Industrial			
	\$'000	\$'000	\$m		\$'000	\$'000	\$'000	\$'000	\$'000	
1870	(g)	(g)		895	27	(g)	(g)			
1880	(g)	(g)		1,299	45	(g)	(g)			
1890	1,904	2,809		3,014	69	(g)	(g)			
1900	8,781	5,514		33,646	2,598	6,916	439			
1910	12,627	12,228		84,262	6,955	12,717	1,170			
1911	14,331	15,000		97,147	8,178	13,996	1,369	(g)	(g)	
1912	13,395	16,824		108,622	8,801	14,925	1,662			
1913	12,841	16,353		121,201	9,350	15,277	2,017			
1914	13,787	16,633		134,510	9,851	15,842	2,267			
1915	15,229	17,418		144,777	10,285	16,058	2,451			
1916	16,099	18,635		156,458	10,667	16,660	2,731			
1917	17,178	18,285		171,207	11,683	17,239	3,042	721	196	
1918	19,374	19,170		182,140	12,580	18,103	3,456	783	303	
1919	21,606	20,829		196,584	14,005	19,851	3,907	803	295	
1920	24,742	21,594		211,415	14,516	21,640	4,089	1,080	368	
1921	24,004	21,833		226,468	15,433	24,183	4,699	1,112	684	
1922	24,519	21,531	(g)	237,505	15,519	25,586	5,189	1,195	658	
1923	25,349	22,796		250,214	16,067	27,544	5,707	1,242	435	
1924	26,245	23,313		264,842	16,436	29,310	6,360	1,528	543	
1925	27,200	24,095		277,701	16,608	31,739	6,811	1,669	724	
1926	(h) 28,887	(h) 25,745		292,353	17,940	33,970	7,317	1,832	901	
1927	29,301	29,233		309,176	13,389	36,279	8,042	(h) 831	(h) 432	
1928	31,025	30,592		330,284	21,291	38,926	8,750	2,111	1,200	
1929	26,811	34,480		350,046	23,218	41,268	9,366	2,391	1,205	
1930	25,524	41,773		367,665	23,457	41,656	9,003	2,452	1,163	
1931	24,455	41,635		371,662	21,735	39,906	8,353	1,914	971	
1932	28,563	39,292		206,997	20,435	39,181	8,585	1,693	655	
1933	29,785	38,433		194,095	20,129	39,447	8,918	1,786	796	
1934	32,853	38,742		192,915	20,798	40,631	9,394	1,746	801	
1935	36,206	41,061		197,611	21,858	42,899	9,945	1,929	910	
1936	38,731	43,232		208,990	23,034	45,608	10,688	2,176	1,015	
1937	39,463	44,532		217,247	23,670	48,857	11,373	2,410	1,366	
1938	41,230	45,141		225,118	24,075	51,653	11,944	2,641	1,526	
1939	41,181	47,774		232,564	24,792	53,853	12,609	2,746	1,462	
1940	42,219	47,529		233,649	23,720	54,708	13,086	2,884	1,460	
1941	47,099	45,617		238,820	25,042	55,842	13,875	2,792	1,236	
1942	51,918	43,638		250,153	27,642	55,881	15,311	2,806	1,245	
1943	61,135	37,827		279,469	37,769	57,865	16,656	2,347	1,014	
1944	71,529	33,462		301,225	51,581	61,380	17,962	2,369	897	
1945	74,846	31,504		316,565	63,526	66,254	19,024	2,565	1,154	
1946	(i) 66,652	(i) 33,726	(j) 11.6	340,737	76,578	77,608	21,036	2,890	1,223	
1947	72,490	45,388	14.2	349,091	73,250	88,016	23,054	3,503	1,737	
1948	82,032	48,754	17.4	358,709	72,365	98,891	25,139	4,188	2,089	
1949	100,971	49,904	21.4	365,130	75,070	111,213	27,127	5,071	2,053	
1950	116,458	55,301	27.4	378,670	79,225	126,332	29,503	5,913	2,440	
1951	149,244	66,680	38.6	392,790	89,345	148,724	32,460	7,360	3,341	
1952	170,923	83,353	43.6	403,678	94,342	171,007	35,257	9,358	5,261	
1953	170,234	87,353	44.2	414,288	99,589	195,499	38,110	10,736	5,453	
1954	181,863	106,429	50.3	422,480	105,229	221,568	40,240	11,427	5,276	
1955	180,895	137,830	52.4	426,637	107,258	251,543	41,487	12,563	6,281	
1956	174,070	142,156	53.9	446,419	115,868	282,139	42,114	13,546	7,126	
1957	185,576	135,074	57.1	473,548	125,386	317,264	42,535	13,972	8,202	
1958	186,478	141,198	60.4	497,690	131,896	352,360	43,003	15,601	7,807	
1959	180,300	147,106	61.5	527,079	142,998	396,322	43,279	17,169	9,165	
1960	192,076	142,064	69.7	550,966	157,246	459,740	44,325	19,951	10,671	
1961	190,094	146,244	75.7	577,619	161,424	523,636	44,745	21,607	12,770	
1962	209,274	139,204	80.4	625,070	181,056	597,892	46,754	22,914	12,255	
1963	219,952	153,528	88.2	683,417	208,812	679,161	47,983	24,761	14,723	
1964	242,268	164,878	96.4	736,009	239,766	774,550	50,588	26,285	15,629	
1965	272,430	186,000	106.3	786,340	261,654	881,652	53,565	28,224	16,108	
1966	310,432	195,190	122.4	848,562	292,871	1,005,119	57,916	32,385	18,247	
1967	355,899	212,023	138.6	905,349	330,807	1,164,613	63,960	36,535	20,995	
1968	398,837	252,627	169.1	970,120	373,602	1,383,330	69,961	41,724	24,218	
1969	462,559	280,147	209.0	1,036,180	412,984	1,651,918	75,605	47,566	28,769	
1970	558,017	323,824	246.4	1,096,466	431,877	1,948,690	83,255	55,641	31,237	
1971	544,732	351,110	295.3	1,153,420	464,611	2,307,827	91,293	63,873	35,793	
1972	552,546	357,410	318.4	1,205,448	511,457	(k)	(k)	71,061	40,025	

(a) Average based on amounts as at close of business each week. From 1927, year ended 30 June. (b) Weekly average for year ended 30 June. Excludes debits to Australian Government accounts at city branches. From 1946-47 includes The Rural and Industries Bank of Western Australia (Rural Department). (c) From 1900, year ended 30 June. (d) Actual date varies according to the financial year of individual insurance companies. (e) From 1927, year ended 30 June. (f) Excludes transactions of The Motor Vehicle Insurance Trust, which became the sole insurer in respect of motor vehicle (third party) insurance from 1 July 1949. (g) Not available. (h) Six months ended 30 June. (i) Average for nine months to 30 June. (j) Ten months ended June 1946. (k) Not available at time of publication.

## TRANSPORT ; CUSTOMS AND EXCISE

Year	State Government railways (a)				Private railways	Customs and excise revenue (e)			Shipping (e) (f)	
	Route miles at end of year (b)	Operating revenue (c)	Operating expenses (c)	Paying goods and livestock carried (c)	Route miles at end of year (d) (e)	Customs	Excise	Total	Clearances to ports outside the State	
									Number	Net tons
		\$'000	\$'000	'000 tons		\$'000	\$'000	\$'000		'000
1870 ...	...	...	...	...	...	81	...	81	131	68
1880 ...	34	5	8	2	38	186	...	186	168	126
1890 ...	188	90	103	61	385	356	...	356	267	420
1900 ...	1,355	2,519	1,723	1,384	623	1,889	63	1,952	747	1,606
1910 ...	2,145	3,275	2,194	2,242	902	1,543	213	1,756	726	2,372
1911 ...	2,376	3,689	2,433	2,489	948	1,593	239	1,832	781	2,566
1912 ...	2,598	3,769	2,688	2,542	981	1,878	229	2,107	765	2,614
1913 ...	2,854	4,076	3,013	2,866	952	1,803	193	1,996	873	3,023
1914 ...	2,967	4,514	3,144	3,170	960	(g) 865	(g) 83	(g) 948	(g) 527	(g) 1,795
1915 ...	3,332	4,116	2,996	2,524	976	1,529	234	1,763	655	2,384
1916 ...	3,332	4,176	3,023	2,555	993	1,513	298	1,811	689	2,493
1917 ...	3,425	3,755	2,897	2,400	1,010	1,334	284	1,618	731	2,558
1918 ...	3,491	3,633	2,903	2,259	983	794	341	1,135	315	1,102
1919 ...	3,539	3,746	3,135	2,379	898	801	549	1,350	636	2,112
1920 ...	3,539	4,584	4,001	2,614	918	1,311	799	2,110	729	2,659
1921 ...	3,539	5,440	4,844	2,604	895	2,018	1,176	3,194	789	2,826
1922 ...	3,539	5,656	4,658	2,548	878	2,550	1,148	2,698	874	3,231
1923 ...	3,555	5,832	4,421	2,624	865	2,005	1,145	3,150	709	3,088
1924 ...	3,629	6,455	4,596	3,023	812	2,377	1,190	3,567	673	3,101
1925 ...	3,733	6,719	4,710	3,285	854	2,707	1,177	3,884	805	3,658
1926 ...	3,865	6,675	5,018	3,237	884	2,791	1,249	4,040	685	3,256
1927 ...	3,918	7,216	5,371	3,439	872	3,356	1,332	4,688	799	3,797
1928 ...	3,977	7,716	5,822	3,698	838	3,454	1,429	4,883	812	3,806
1929 ...	4,079	7,600	6,111	3,670	842	3,788	1,431	5,219	808	3,674
1930 ...	4,111	7,318	6,226	3,530	847	3,882	1,527	5,409	794	3,932
1931 ...	4,181	6,398	5,222	3,154	826	2,166	1,304	3,470	742	3,686
1932 ...	4,235	5,845	4,247	2,848	830	2,117	1,327	3,444	694	3,530
1933 ...	4,338	5,864	4,223	2,840	845	2,430	1,719	4,149	691	3,564
1934 ...	4,360	5,839	4,373	2,652	854	2,574	1,628	4,202	683	3,568
1935 ...	4,359	6,624	4,765	2,903	869	2,766	1,736	4,502	730	3,775
1936 ...	4,358	6,892	4,976	2,887	880	3,239	1,830	5,069	725	3,831
1937 ...	4,357	6,924	5,240	2,798	873	3,504	1,926	5,430	761	3,754
1938 ...	4,376	7,356	5,420	3,062	854	3,710	1,955	5,665	866	4,111
1939 ...	4,378	7,198	5,823	2,859	844	3,381	2,218	5,599	930	4,327
1940 ...	4,381	7,112	5,657	2,659	831	3,769	2,395	6,164	805	3,751
1941 ...	4,381	7,144	5,516	2,604	815	2,934	3,149	6,083	556	3,087
1942 ...	4,381	7,993	6,052	2,638	818	2,273	3,757	6,030	492	2,508
1943 ...	4,381	8,836	6,895	2,505	849	1,646	5,569	7,215	312	1,467
1944 ...	4,381	8,773	7,592	2,560	829	1,661	6,225	7,886	385	1,580
1945 ...	4,381	8,552	7,529	2,904	798	1,783	5,705	7,488	382	1,528
1946 ...	4,381	8,213	8,053	2,728	706	2,707	6,508	9,215	490	2,473
1947 ...	4,348	8,092	8,848	2,577	759	4,377	6,894	11,271	572	2,646
1948 ...	4,348	9,198	11,140	2,858	739	5,784	9,264	15,048	752	3,431
1949 ...	4,321	10,430	13,405	2,737	734	6,987	10,254	17,241	950	4,678
1950 ...	4,252	12,944	15,003	2,843	774	10,166	10,943	21,109	1,006	5,272
1951 ...	4,228	14,392	17,238	3,033	752	10,839	11,973	22,812	1,060	5,552
1952 ...	4,113	18,327	21,331	3,063	752	14,045	16,312	30,357	1,045	5,524
1953 ...	4,108	15,945	24,175	2,619	724	9,908	18,395	28,303	1,025	5,407
1954 ...	4,111	22,749	27,512	3,206	758	12,241	19,447	31,688	1,005	5,320
1955 ...	4,111	25,061	27,871	3,407	748	12,196	21,812	34,008	1,136	6,144
1956 ...	4,119	26,548	29,986	3,793	726	8,473	24,092	32,565	1,268	6,776
1957 ...	4,117	28,088	32,023	4,223	706	5,504	30,078	35,582	1,244	6,531
1958 ...	4,117	25,950	29,685	3,589	575	5,476	32,547	38,023	1,219	6,499
1959 ...	4,117	27,400	29,865	3,913	575	4,800	32,398	37,198	1,282	6,607
1960 ...	4,120	30,077	30,816	4,533	517	5,614	33,634	39,248	1,403	7,234
1961 ...	4,123	33,076	31,103	4,833	(i) 469	7,470	33,835	41,305	1,598	8,547
1962 ...	(h) 3,851	35,608	31,527	5,342	(i) 558	7,156	35,705	42,861	1,687	8,962
1963 ...	(h) 3,797	33,429	31,150	4,793	552	8,996	35,944	44,940	1,528	8,252
1964 ...	(h) 3,677	35,190	32,250	5,187	413	10,369	37,839	48,208	1,580	8,627
1965 ...	3,733	36,686	32,920	5,229	(j) 21	10,692	43,349	54,041	1,560	8,593
1966 ...	3,747	43,669	35,985	6,384	(k) 286	15,251	53,536	68,787	1,711	9,528
1967 ...	3,815	49,120	40,170	7,873	283	13,569	58,176	71,745	1,690	10,977
1968 ...	3,815	52,773	42,623	8,910	283	19,468	62,903	82,371	1,770	12,916
1969 ...	3,826	50,558	44,503	8,934	(l) 548	21,202	69,289	90,490	1,848	15,372
1970 ...	3,828	57,240	48,550	10,665	549	24,649	76,637	101,286	2,165	21,005
1971 ...	3,837	61,917	53,205	13,244	549	32,262	88,978	121,240	2,499	27,765
1972 ...	3,800	64,346	57,112	13,648	549	30,072	101,883	131,955	2,425	28,734

(a) From 1900, year ended 30 June. (b) Open for general and passenger traffic. (c) From 1942 includes operations of Railway Road Services, which began in November 1941. (d) From 1900 to 1964 includes 277 miles of line open for general and passenger traffic. (e) From 1915, year ended 30 June. (f) From 1966-67 excludes vessels of 200 net tons and under. (g) Six months ended 30 June. (h) Decrease due to proclamations of closure issued by authority of the *Railways (Que-Big Bell and other Railways) Discontinuance Act, 1960*. (i) Increase due to the transfer of all government-operated timber railways to private control. (j) Decrease due to transfer of Midland Railway Company to Western Australian Government Railways, and to closure of timber and mining railways. (k) Increase due to opening of Goldsworthy-Port Hedland, Tom Price-Dampier and Westmine-Tilley iron-ore railways. (l) Increase due to opening of Newman-Port Hedland iron-ore railway.

## MOTOR VEHICLE REGISTRATIONS; EXPORTS OF WHEAT

Year	New motor vehicles registered (a)				Motor vehicles on register (b)				Wheat exports (c)	
	Motor cars (d)	Light and heavy commercials; omnibuses	Motor cycles (e)	Total	Motor cars (f)	Light and heavy commercials; omnibuses	Motor cycles (e)	Total	Quantity ('000 bushels)	Value (\$'000)
1860 ....									(g)	(g)
1870 ....									15	8
1880 ....									1	813
1890 ....									2,015	813
1900 ....									2,231	774
1910 ....									502	200
1911 ....					n.a.	n.a.	n.a.	n.a.	4,106	1,528
1912 ....									7,286	2,688
1913 ....									(g)	(g)
1914 ....									3,931	2,047
1915 ....									7,036	2,239
1916 ....	n.a.	n.a.	n.a.	n.a.	2,538				7,694	875
1917 ....					2,938				1,651	800
1918 ....					3,404				9,151	5,083
1919 ....					4,181				6,576	5,860
1920 ....					4,403				10,357	5,076
1921 ....					7,280				5,363	2,942
1922 ....					11,162				10,925	5,085
1923 ....					15,261				14,986	10,316
1924 ....					20,011				13,175	8,373
1925 ....					19,451	5,819			16,330	9,334
1926 ....					24,205	8,104			26,194	13,989
1927 ....					27,174	9,767			26,091	13,384
1928 ....					31,130	11,358	7,707	50,195	24,953	12,258
1929 ....										
1930 ....										
1931 ....					27,741	10,880	6,777	45,398	42,440	10,577
1932 ....					28,608	12,094	6,700	47,402	36,868	10,647
1933 ....					27,969	12,626	6,700	47,295	30,695	9,323
1934 ....					28,761	13,937	6,284	48,982	23,360	6,834
1935 ....					30,578	15,530	6,597	52,705	24,936	7,844
1936 ....					32,329	17,362	6,861	56,552	14,897	5,607
1937 ....					34,180	19,919	6,977	61,076	13,780	7,255
1938 ....					36,386	22,596	7,079	66,061	22,038	9,667
1939 ....	3,297	1,814	568	5,679	38,039	24,441	7,199	69,679	22,614	6,055
1940 ....	2,871	1,517	399	4,787	38,907	25,026	6,789	70,722	15,330	4,669
1941 ....	1,015	632	200	1,847	36,995	24,788	6,704	68,487	14,856	5,858
1942 ....	250	353	74	677	29,022	21,625	4,057	54,704	9,774	4,021
1943 ....	218	151	57	426	29,750	21,189	3,935	54,874	5,138	2,111
1944 ....	19	1,102	109	1,230	30,295	22,459	4,324	57,078	12,057	5,813
1945 ....	40	597	192	829	30,635	23,943	4,501	59,079	23,590	14,953
1946 ....	101	456	271	828	31,408	28,904	6,799	67,111	13,510	11,696
1947 ....	1,354	1,126	678	3,158	32,879	32,097	8,199	73,175	6,802	8,964
1948 ....	2,963	1,975	1,059	5,997	35,596	35,285	8,877	79,758	19,312	33,809
1949 ....	4,684	3,122	1,769	9,575	40,119	38,901	10,974	89,994	18,401	28,100
1950 ....	8,926	4,707	2,346	15,979	48,632	43,206	12,897	104,735	21,510	33,384
1951 ....	8,201	6,610	2,802	17,613	56,235	47,908	14,535	118,678	30,510	51,688
1952 ....	8,836	5,750	2,740	17,326	64,277	52,627	16,047	132,951	26,823	45,728
1953 ....	6,879	4,881	1,416	13,176	69,917	56,445	15,565	141,927	23,319	40,347
1954 ....	9,926	5,601	1,258	16,785	78,312	60,362	15,243	153,917	6,800	11,272
1955 ....	12,394	5,993	1,202	19,589	90,255	63,870	14,662	168,787	19,335	27,478
1956 ....	10,100	5,203	1,089	16,392	99,206	62,809	12,959	174,974	22,773	28,860
1957 ....	9,321	4,418	1,192	14,931	104,506	63,315	12,731	180,552	46,796	61,291
1958 ....	10,140	5,562	1,702	17,404	111,825	63,598	12,631	188,054	26,644	40,861
1959 ....	10,389	5,140	2,071	17,600	119,957	65,588	12,814	198,359	23,503	33,113
1960 ....	13,492	5,695	1,949	21,136	130,476	68,702	12,876	212,054	36,713	49,442
1961 ....	15,161	5,542	1,080	21,783	141,612	70,974	12,589	225,175	52,480	71,280
1962 ....	17,082	5,833	902	23,817	155,447	74,224	12,390	242,061	73,883	104,356
1963 (i)	23,175	6,367	754	30,296	170,781	75,748	11,649	258,178	50,720	72,197
1964 (i)	24,958	7,013	628	32,599	189,251	78,239	10,449	277,939	55,022	77,881
1965 (i)	23,304	6,897	553	30,754	202,914	79,316	9,244	291,474	40,507	56,955
1966 (i)	23,418	9,170	706	33,294	219,816	84,423	8,777	313,016	49,372	66,515
1967 (i)	27,922	9,404	1,158	38,484	240,519	87,661	8,881	337,061	84,980	126,918
1968 (i)	33,368	10,448	1,525	45,341	263,552	92,563	9,632	365,747	87,200	121,764
1969 (i)	35,379	11,018	1,539	47,936	288,731	96,624	10,427	395,782	55,901	77,987
1970 (i)	37,764	11,138	1,945	50,847	316,401	102,291	11,677	430,369	66,682	86,593
1971 (i)	37,769	10,872	2,718	51,359	346,040	107,616	13,166	466,822	98,138	130,564
1972 (i)	37,273	9,820	3,985	51,078	345,852	105,283	14,437	465,572	95,074	128,132

n.a. denotes 'not applicable' or 'not available'.

(a) Year ended 30 June. (b) From 1929, at 30 June; for earlier years, at various dates. For years before 1946, excludes Commonwealth-owned vehicles; from 1946, includes Commonwealth-owned vehicles other than those of defence services. From 1956, new series based on the results of the periodic census of motor vehicles. (c) From 1915, year ended 30 June. (d) From 1959, includes station wagons previously included with commercial vehicles. (e) Including motor scooters. (f) From June 1956, includes station wagons previously included with commercial vehicles. (g) Less than 500. (h) Six months ended 30 June. (i) Figures for motor vehicles on register for 1963 and subsequent years are subject to revision when final results of the census of motor vehicles on register at 30 September 1971 become available.

## EXPORTS OF CERTAIN COMMODITIES—continued

Year (a)	Wool				Meats—Fresh, chilled or frozen					
	Greasy (b)		Degreased		Beef and veal		Mutton and lamb		Pigmeat	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	tonnes (c)	\$'000	tonnes (c)	\$'000	'000 lb	\$'000	'000 lb	\$'000	'000 lb	\$'000
1840 ....	23	5	—	—	....	....	....	....	....	....
1850 ....	141	31	—	—	....	....	....	....	....	....
1860 ....	298	99	—	—	....	....	....	....	....	....
1870 ....	811	179	(d)	(d)	....	....	....	....	....	....
1880 ....	1,970	543	....	....	....	....	....	....	....	....
1890 ....	3,161	523	....	....	....	....	....	....	....	....
1900 ....	3,927	505	198	36	(e)	(e)	(e)	(e)	(e)	(e)
1910 ....	11,692	1,894	191	40	....	....	....	....	....	....
1911 ....	11,331	1,835	80	16	....	....	....	....	....	....
1912 ....	12,656	2,052	102	19	....	....	....	....	....	....
1913 ....	11,569	1,933	103	21	....	....	....	....	(f)	....
1914 (g) ..	2,198	361	16	3	....	....	....	....	....	....
1915 ....	10,844	1,626	45	10	....	....	....	....	....	....
1916 ....	13,095	2,517	107	29	4,311	176	41	2	....	....
1917 ....	11,035	2,831	35	10	....	....	....	....	....	....
1918 ....	4,771	1,056	51	15	1,188	36	115	4	324	15
1919 ....	13,164	3,775	283	129	239	6	138	4	133	6
1920 ....	25,530	7,218	1,504	657	662	33	....	....	....	....
1921 ....	19,073	4,593	492	183	5,762	248	118	7	45	5
1922 ....	24,726	5,673	1,896	731	2,479	79	....	....	....	....
1923 ....	17,815	5,986	1,202	479	9,955	305	866	55	1	(f)
1924 ....	19,214	8,028	688	446	10,647	272	446	26	....	....
1925 ....	15,296	7,030	586	443	7,106	198	....	....	....	....
1926 ....	21,783	6,703	756	353	8,119	240	....	....	....	....
1927 ....	23,646	6,694	752	342	6,697	198	....	....	....	....
1928 ....	27,398	9,734	381	192	11,026	272	227	15	....	....
1929 ....	25,493	7,615	382	207	9,313	226	....	....	....	....
1930 ....	28,022	5,422	465	136	11,381	272	....	....	....	....
1931 ....	31,478	4,652	629	121	11,315	244	855	35	209	7
1932 ....	29,298	4,540	892	151	11,240	235	2,113	103	1,221	53
1933 ....	30,931	4,871	1,222	236	14,406	276	384	15	949	37
1934 ....	31,751	9,131	1,237	491	12,602	234	1,352	49	668	29
1935 ....	36,537	6,479	1,565	348	12,072	233	4,979	236	1,194	55
1936 ....	35,602	8,892	1,398	451	17,036	321	5,557	282	1,550	65
1937 ....	26,455	7,854	1,110	475	11,227	249	4,555	247	1,306	67
1938 ....	24,245	5,877	1,227	446	11,445	314	8,705	470	823	52
1939 ....	31,030	6,072	1,636	469	16,501	497	11,775	638	1,278	80
1940 ....	29,610	7,603	1,655	661	10,639	329	10,285	533	4,990	324
1941 ....	9,064	2,601	1,270	518	12,309	407	9,691	496	13,261	851
1942 ....	34,355	9,836	2,235	1,030	7,883	327	8,122	435	10,295	682
1943 ....	12,934	4,163	1,239	594	(f)	(f)	8,785	458	2,321	155
1944 ....	31,145	10,842	2,095	917	3,185	190	14,691	763	3,457	238
1945 ....	23,613	8,082	2,216	1,025	2,651	168	8,624	410	3,741	254
1946 ....	49,070	17,136	5,328	2,778	9,517	558	5,002	275	7,497	545
1947 ....	34,104	15,561	7,918	4,960	14,017	691	8,997	409	2,880	248
1948 ....	36,380	27,801	7,291	5,443	14,007	604	11,198	584	669	53
1949 ....	38,972	36,717	6,163	6,352	17,760	840	10,157	608	1,375	179
1950 ....	37,832	40,071	7,934	10,852	19,015	1,183	5,274	485	359	59
1951 ....	36,619	96,493	5,014	16,066	16,973	1,221	2,070	217	616	113
1952 ....	41,483	57,291	5,150	10,389	13,290	1,135	2,301	301	934	232
1953 ....	45,772	67,759	5,717	11,363	11,058	1,437	14,527	1,463	1,020	303
1954 ....	45,677	71,346	5,406	10,914	13,555	1,748	7,295	875	474	152
1955 ....	43,796	59,296	6,015	11,267	14,939	2,038	7,109	1,328	2,313	532
1956 ....	51,387	57,894	7,595	12,419	16,757	2,343	14,556	2,156	1,637	482
1957 ....	49,252	71,251	8,503	16,259	9,099	1,221	12,761	1,741	1,615	588
1958 ....	43,750	57,224	8,417	15,462	24,305	3,302	11,205	1,900	5,124	1,462
1959 ....	50,408	46,313	9,872	12,224	23,226	4,342	21,923	3,177	4,371	1,178
1960 ....	50,396	58,137	12,442	19,820	29,977	6,742	19,258	2,378	2,618	953
1961 ....	59,830	59,290	11,851	15,552	27,365	6,141	25,059	3,901	4,176	1,501
1962 ....	62,094	68,177	11,490	15,688	27,654	6,299	18,669	2,436	6,946	2,025
1963 ....	59,617	66,401	11,441	15,706	38,069	9,382	16,376	2,401	4,543	1,404
1964 ....	72,240	97,138	10,388	17,101	45,257	11,497	11,872	1,895	1,898	718
1965 ....	68,861	83,030	10,245	15,264	42,682	11,730	11,111	1,981	1,259	516
1966 ....	87,853	101,905	9,845	13,223	39,937	12,108	22,750	4,357	926	376
1967 ....	97,098	114,052	9,788	12,943	37,284	11,987	21,278	3,723	1,245	470
1968 ....	113,224	113,868	11,484	12,549	37,084	12,995	28,998	4,745	1,205	474
1969 ....	132,034	142,065	12,354	15,885	44,555	16,939	47,480	7,218	1,416	564
1970 ....	120,224	117,952	12,554	17,024	52,128	21,508	65,391	11,271	3,169	1,175
1971 ....	119,137	89,752	9,251	8,537	44,658	17,626	53,448	9,396	2,482	895
1972 ....	145,803	109,263	13,481	11,197	53,870	22,528	94,786	17,645	5,518	1,995

(a) From 1915, year ended 30 June. (b) For 1890 and earlier years includes degreased wool for which figures are not available separately. (c) 1 tonne = 1,000 kilograms; 1 kg = 2.2 lb approximately. (d) See note (b). (e) Separate particulars not available. Total exports of fresh meats were 184,379 lb valued at \$9,164. (f) Less than 500. (g) Six months ended 30 June.

## EXPORTS OF CERTAIN COMMODITIES—continued

Year (a)	Flour		Butter		Potatoes		Fresh fruit (b)	Cattle	Sheep
	Quantity	Value	Quantity	Value	Quantity	Value	Value	Value	Value
	short tons (c)	\$'000	cwt	\$'000	tons	\$'000	\$'000	\$'000	\$'000
1850	....	....	....	(d)	(d)	(e)	....	(e)	(e)
1860	.... 12	(e)	....	....	70	1	....	....	4
1870	....	....	....	....	26	(e)	....	....	(e)
1880	.... (d)	2	....	....	....	....	....	....	(e)
1890	....	....	....	....	....	....	....	1	2
1900	.... 52	1	76	1	111	1	1	(e)	2
1910	.... 2,821	49	1,507	12	18	(e)	11	16	9
1911	.... 7,145	107	157	1	....	....	32	67	17
1912	.... 15,410	241	135	2	548	11	103	103	22
1913	.... 29,696	477	165	2	3	(e)	65	146	31
1914 (f)	.... 18,211	315	30	(e)	4	(e)	17	59	6
1915	.... 2,890	52	15	(e)	69	1	93	75	11
1916	.... 17,220	426	69	1	516	11	44	142	9
1917	.... 37,747	843	232	4	6	(e)	164	45	4
1918	.... 57,634	1,377	2,631	48	7	(e)	71	177	29
1919	.... 105,183	2,583	1,457	29	57	1	114	18	44
1920	.... 129,250	5,045	744	17	1,611	54	300	73	28
1921	.... 53,302	2,144	398	10	339	7	243	44	23
1922	.... 56,155	2,046	245	6	293	5	352	96	70
1923	.... 59,703	1,338	13	(e)	1,541	32	476	118	45
1924	.... 77,970	1,644	115	2	3,389	90	378	60	40
1925	.... 74,909	1,923	....	(e)	436	5	493	5	8
1926	.... 91,859	2,581	....	(e)	1,621	43	464	30	31
1927	.... 94,020	2,314	11	(e)	1,516	44	669	32	50
1928	.... 85,107	2,009	10	(e)	429	12	384	70	58
1929	.... 79,659	1,780	713	14	1,306	32	1,067	38	52
1930	.... 69,070	1,540	412	7	4,957	151	312	1	46
1931	.... 85,664	1,266	393	5	4,820	47	604	3	25
1932	.... 88,252	1,156	13,044	179	713	14	861	3	28
1933	.... 86,155	1,105	20,519	280	479	5	665	1	35
1934	.... 64,594	781	19,676	195	1,681	17	673	(e)	26
1935	.... 85,965	1,127	20,504	148	2,337	49	826	1	44
1936	.... 66,836	972	20,325	246	8,307	121	905	1	47
1937	.... 86,146	1,662	14,535	183	6,995	119	670	1	56
1938	.... 81,162	1,605	32,318	472	4,951	55	549	(e)	74
1939	.... 89,029	1,165	36,917	462	14,725	282	1,175	1	73
1940	.... 91,667	1,301	36,861	490	11,764	214	740	(e)	65
1941	.... 118,595	2,185	34,412	460	18,209	373	282	2	112
1942	.... 84,974	1,681	32,988	428	10,287	213	114	1	97
1943	.... 77,616	1,581	3,334	47	6,309	139	139	1	(e)
1944	.... 106,859	2,344	18,082	262	760	22	96	27	(e)
1945	.... 101,896	2,505	18,969	369	17,656	581	132	2	1
1946	.... 116,942	4,667	25,254	502	13,010	446	488	2	91
1947	.... 129,699	7,628	18,113	383	12,735	484	1,445	27	362
1948	.... 139,996	11,326	40,207	1,000	18,329	681	1,688	10	347
1949	.... 131,203	10,516	40,843	1,047	13,506	431	1,452	11	374
1950	.... 115,814	8,335	29,033	864	9,931	384	1,780	5	426
1951	.... 159,740	11,774	9,795	312	11,004	506	2,295	9	616
1952	.... 161,581	13,669	2,828	93	13,301	733	2,853	23	631
1953	.... 176,241	15,090	3,059	126	12,657	750	4,556	23	501
1954	.... 147,849	11,704	3,343	141	15,773	1,300	3,300	29	568
1955	.... 120,342	7,219	3,312	142	8,878	512	3,845	68	612
1956	.... 129,421	7,766	5,017	206	2,239	171	3,393	177	625
1957	.... 127,491	7,474	3,489	156	7,606	736	4,598	243	923
1958	.... 111,827	6,907	3,938	169	13,777	832	3,725	308	841
1959	.... 104,559	6,337	3,508	166	8,442	368	3,609	396	764
1960	.... 87,851	5,100	3,764	183	9,460	436	2,437	325	845
1961	.... 135,407	7,840	5,971	247	7,697	437	4,636	318	881
1962	.... 97,983	5,891	14,877	532	10,165	632	2,818	55	1,254
1963	.... 74,574	4,645	4,857	228	17,747	810	4,982	160	1,495
1964	.... 69,090	4,396	2,723	126	9,768	353	4,016	331	1,433
1965	.... 92,402	5,926	3,272	159	12,731	841	5,165	427	1,376
1966	.... 54,157	3,378	20,896	732	21,025	1,393	4,838	283	1,633
1967	.... 38,365	2,507	3,778	201	17,202	692	5,704	381	1,771
1968	.... 46,207	2,944	4,433	232	12,934	622	4,068	1,229	2,191
1969	.... 38,691	2,433	4,549	254	21,597	1,149	6,552	972	2,943
1970	.... 34,362	2,257	4,256	243	19,574	831	6,054	760	2,876
1971	.... 29,399	1,958	5,239	325	9,242	510	7,208	1,159	2,710
1972	.... 20,814	1,345	4,603	297	8,464	371	5,245	1,865	3,716

(a) From 1915, year ended 30 June. (b) Includes tomatoes for 1932-33 and earlier years. (c) Short ton = 2,000 lb.  
 (d) Not available. (e) Less than \$500. (f) Six months ended 30 June.

EXPORTS OF CERTAIN COMMODITIES—*continued*

Year (a)	Skins and hides	Timber (b)		Rock lobster tails (c)		Pearl-shell		Iron and steel (d)
	Value	Quantity	Value	Quantity	Value	Quantity	Value	Value
	\$'000	'000 sup. ft	\$'000	'000 lb	\$'000	cwt	\$'000	\$'000
1850	1	126	2	....	....	....	....	....
1860	(e)	658	10	....	....	....	....	....
1870	(e)	2,566	35	....	....	1,480	19	....
1880	8	7,950	133	....	....	14,380	79	....
1890	49	14,066	164	....	....	24,745	173	....
1900	150	68,705	916	....	....	14,747	173	7
1910	482	144,858	1,945	....	....	29,281	492	5
1911	347	149,390	1,972	....	....	27,471	482	2
1912	365	135,565	1,807	....	....	31,915	843	3
1913	513	163,438	2,179	....	....	30,419	549	3
1914 (f)	209	75,357	1,004	....	....	10,143	172	8
1915	300	119,622	1,617	....	....	22,806	323	45
1916	504	65,188	884	....	....	25,045	317	14
1917	445	46,688	622	....	....	24,000	394	21
1918	407	41,230	548	....	....	17,267	288	53
1919	544	49,629	665	....	....	13,253	236	62
1920	1,246	60,784	931	....	....	33,505	671	16
1921	759	117,795	2,274	....	....	23,056	470	26
1922	730	99,707	2,082	....	....	30,440	508	16
1923	1,092	94,935	1,995	....	....	25,477	429	18
1924	1,040	133,648	2,735	....	....	28,479	487	6
1925	955	142,132	2,956	....	....	23,264	469	13
1926	883	144,017	3,046	....	....	25,762	465	9
1927	752	157,355	3,316	....	....	24,502	425	10
1928	1,106	124,617	2,531	....	....	19,066	332	7
1929	1,101	91,623	1,921	....	....	21,515	345	3
1930	738	78,957	1,615	....	....	19,378	331	3
1931	539	49,534	1,015	....	....	20,313	334	2
1932	395	36,752	722	....	....	12,237	194	1
1933	480	26,826	523	....	....	20,653	294	1
1934	771	48,730	972	....	....	16,854	196	7
1935	640	63,913	1,270	....	....	19,435	189	3
1936	1,061	67,178	1,356	....	....	19,363	214	3
1937	1,143	68,087	1,397	....	....	18,261	247	7
1938	985	90,549	1,860	....	....	24,781	336	12
1939	736	68,451	1,436	....	....	22,621	212	15
1940	745	60,595	1,251	....	....	16,859	153	31
1941	580	73,094	1,546	....	....	13,704	153	35
1942	772	62,697	1,369	....	....	11,616	142	19
1943	348	42,272	1,189	....	....	120	1	5
1944	680	43,744	1,216	....	....	37	1	23
1945	537	34,218	1,131	....	....	....	....	100
1946	1,274	40,476	1,429	....	....	260	8	9
1947	2,131	41,505	1,719	....	....	2,491	120	99
1948	2,048	43,349	2,230	....	....	6,733	340	89
1949	2,134	38,379	1,986	(g)	(g)	8,169	367	59
1950	2,329	34,295	1,949	1,143	463	6,997	248	95
1951	5,294	28,110	1,783	3,165	1,517	6,797	274	83
1952	3,194	28,659	2,075	2,891	1,861	8,205	406	58
1953	3,942	47,585	4,147	2,930	2,085	10,538	612	357
1954	3,295	46,318	4,480	3,222	2,342	12,271	708	279
1955	2,921	41,748	3,847	3,377	2,490	13,785	820	602
1956	3,274	54,591	5,598	3,529	3,022	15,954	999	530
1957	4,650	56,147	6,215	3,566	3,514	21,671	1,391	1,174
1958	3,898	66,872	7,496	4,708	3,965	22,580	1,381	2,470
1959	3,489	77,561	8,415	6,117	5,281	15,521	772	4,218
1960	4,767	73,601	7,760	6,604	6,499	12,535	707	11,198
1961	3,828	66,412	7,175	5,106	5,881	11,283	502	12,781
1962	4,580	68,059	7,528	7,952	9,778	8,924	320	13,826
1963	4,339	65,811	7,241	7,694	8,910	7,647	289	15,107
1964	4,966	63,331	6,813	7,532	9,211	3,304	112	15,029
1965	4,177	56,521	6,279	5,891	10,592	3,186	133	17,933
1966	5,447	29,185	3,687	7,040	13,821	3,045	123	14,458
1967	5,377	58,960	7,475	8,032	13,873	4,284	189	15,658
1968	4,699	35,850	4,947	8,640	17,989	4,178	147	11,442
1969	6,013	37,271	5,068	6,698	17,133	4,180	125	27,002
1970	7,968	40,816	5,666	6,561	15,695	5,013	173	34,306
1971	5,395	33,660	4,808	6,955	19,413	3,862	132	34,571
1972	5,356	42,877	6,440	7,550	24,626	3,981	123	36,415

(a) From 1915, year ended 30 June. (b) Excludes plywood and veneers and small quantities of timber for which the superficial footage is not recorded. For the years 1910 to 1921, figures are approximate. (c) Figures for the years 1949–50 to 1951–52 represent overseas exports only and exclude small consignments to other Australian States. Those for 1952–53 to 1959–60 include small consignments of cooked whole rock lobsters to other Australian States. (d) Principally pig-iron, cast iron and basic shapes and sections of iron and steel. (e) Less than \$500. (f) Six months ended 30 June. (g) Precise information not available, but it is known that the value of exports was about \$500,000.

## EXPORTS OF CERTAIN COMMODITIES—continued

Year (a)	Gold mint bullion (b)		Lead and zinc ores (c)	Tin ore and concentrates	Asbestos (crude and fibre)		Manganese ore and concentrates		Iron ore and concentrates		Ilmenite concentrates (including leucoxene)	
	Quantity	Value (d)	Value	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	'000 fine oz	\$'000	\$'000	\$'000	short tons (e)	\$'000	'000 tons	\$'000	'000 tons	\$'000	'000 tons	\$'000
1850	....	....	5	....	....	....	....	....	....	....	....	....
1860	....	....	2	....	....	....	....	....	....	....	....	....
1870	....	....	29	....	....	....	....	....	....	....	....	....
1880	....	....	31	....	....	....	....	....	....	....	....	....
1890	23	173	4	11	....	....	....	....	....	....	....	....
1900	1,000	7,589	5	76	....	....	....	....	....	....	....	....
1910	334	2,835	4	93	....	....	....	....	....	....	....	....
1911	309	2,613	31	110	....	....	....	....	....	....	....	....
1912	269	2,285	45	159	....	....	....	....	....	....	....	....
1913	198	1,683	119	144	....	....	....	....	....	....	....	....
1914 (g)	60	513	57	39	....	....	....	....	....	....	....	....
1915	100	827	95	51	....	....	....	....	....	....	....	....
1916	183	1,547	22	92	....	....	....	....	....	....	....	....
1917	....	....	7	113	....	....	....	....	....	....	....	....
1918	....	....	9	110	....	....	....	....	....	....	....	....
1919	....	....	8	112	....	....	....	....	....	....	....	....
1920	41	452	102	129	....	....	....	....	....	....	....	....
1921	(f)	1	67	41	145	13	....	....	....	....	....	....
1922	....	....	....	10	98	8	....	....	....	....	....	....
1923	....	....	47	18	....	....	....	....	....	....	....	....
1924	91	767	108	38	....	....	....	....	....	....	....	....
1925	36	305	186	29	....	....	....	....	....	....	....	....
1926	50	386	186	23	....	....	....	....	....	....	....	....
1927	91	711	109	28	....	....	....	....	....	....	....	....
1928	14	121	8	24	....	....	....	....	....	....	....	....
1929	10	81	11	30	....	....	....	....	....	....	....	....
1930	(f)	1	19	29	....	....	....	....	....	....	....	....
1931	....	....	2	10	....	....	....	....	....	....	....	....
1932	515	7,336	1	6	....	....	....	....	....	....	....	....
1933	625	9,376	....	7	....	....	....	....	....	....	....	....
1934	653	10,624	....	11	....	....	....	....	....	....	....	....
1935	589	10,258	....	17	....	....	....	....	....	....	....	....
1936	771	13,385	....	18	....	....	....	....	....	....	....	....
1937	909	15,819	....	16	....	....	....	....	....	....	....	....
1938	1,075	18,598	1	20	310	37	....	....	....	....	....	....
1939	1,169	21,240	1	11	300	26	....	....	....	....	....	....
1940	1,168	24,056	2	14	207	17	....	....	....	....	....	....
1941	1,202	25,096	2	12	163	15	....	....	....	....	....	....
1942	975	20,590	2	6	82	7	....	....	....	....	....	....
1943	756	15,744	1	5	98	8	....	....	....	....	....	....
1944	349	7,250	1	6	101	8	....	....	....	....	....	....
1945	....	....	1	5	425	36	....	....	....	....	....	....
1946	....	....	(f)	8	1,192	104	....	....	....	....	....	....
1947	....	....	5	12	702	65	....	....	....	....	....	....
1948	356	7,656	146	17	1,324	148	....	....	....	....	....	....
1949	....	....	235	31	1,299	179	....	....	....	....	....	....
1950	(f)	2	272	49	985	204	10	22	....	....	....	....
1951	....	....	263	62	1,728	378	11	154	....	....	....	....
1952	395	13,143	1,369	107	2,888	709	8	115	52	102	....	....
1953	759	24,798	1,681	153	3,313	990	14	256	544	1,079	....	....
1954	418	13,230	270	97	3,527	986	27	829	583	1,157	....	....
1955	618	19,338	108	146	4,180	788	34	804	580	1,149	....	....
1956	410	12,842	888	322	8,305	1,440	55	1,271	472	936	....	....
1957	770	24,119	960	293	11,825	2,140	58	1,551	329	649	....	....
1958	208	6,511	410	166	12,944	2,920	75	2,501	439	870	88	1,011
1959	132	4,118	238	304	11,836	2,166	56	1,628	589	1,169	65	648
1960	600	18,738	229	415	16,983	3,111	79	2,224	796	1,601	89	713
1961	2,532	79,271	83	325	11,879	2,364	47	1,267	1,019	2,101	130	1,198
1962	453	12,195	45	563	14,165	2,753	108	2,945	1,052	2,209	156	1,441
1963	417	13,048	33	532	13,900	2,799	52	1,390	1,471	2,898	180	1,717
1964	385	12,045	18	1,080	8,894	1,767	27	695	1,359	2,743	259	2,571
1965	513	16,127	662	1,229	12,270	2,210	76	1,747	1,537	3,040	325	3,194
1966	833	26,147	124	1,521	8,889	1,702	104	2,404	2,615	6,967	423	4,181
1967	480	15,107	177	2,214	6,597	1,229	190	4,161	8,395	50,890	436	4,440
1968	373	11,816	58	2,330	(h)	(f)	161	3,408	14,333	104,506	455	4,645
1969	361	12,701	161	1,843	72	8	176	3,624	19,584	151,797	548	5,751
1970	387	13,874	41	1,386	62	4	158	3,086	31,044	233,580	564	6,068
1971	96	3,041	....	1,511	50	10	156	2,755	45,542	341,702	554	6,631
1972	108	4,125	....	2,043	44	3	127	2,005	47,890	347,500	576	8,337

(a) From 1915, year ended 30 June. (b) Gold sold abroad before consignment is not recorded as an export until actually shipped. (c) Includes silver-lead and silver-lead-zinc ores and concentrates. (d) Includes additional premiums on sales of industrial gold. (e) Short ton = 2,000 lb. (f) Less than 500. (g) Six months ended June. (h) 700 lb.

EXTERNAL TRADE  
(\$'000)

Year (a)	Imports			Exports (b)			Excess of—		Ships' stores
	Overseas	Interstate	Total	Overseas	Interstate	Total	Imports	Exports	
1850	(c)	(c)	125	(c)	(c)	44	80	....	(c)
1860	318	20	338	160	16	175	163	....	3
1870	260	167	427	348	46	394	33	....	8
1880	349	358	707	736	252	988	....	280	11
1890	1,025	724	1,749	961	369	1,330	419	....	14
1900	6,574	5,350	11,924	11,246	2,250	13,496	....	1,572	208
1910	8,750	7,067	15,817	11,679	4,627	16,306	....	489	294
1911	8,971	8,321	17,292	18,342	2,586	20,928	....	3,637	285
1912	10,635	8,466	19,101	15,281	2,308	17,589	1,512	....	293
1913	10,815	8,970	19,785	10,204	7,726	17,931	1,854	....	326
1914 (d)	5,112	4,256	9,368	5,788	4,474	10,262	....	894	157
1915	7,972	8,630	16,603	6,242	4,177	10,419	6,184	....	286
1916	8,338	9,628	17,966	8,769	6,711	15,480	2,486	....	601
1917	8,773	9,997	18,770	9,291	19,488	28,779	....	10,009	587
1918	5,011	10,288	15,298	8,521	2,783	11,303	3,995	....	311
1919	6,281	9,767	16,048	18,886	2,323	21,209	....	5,161	637
1920	9,918	14,819	24,737	28,918	2,392	31,311	....	6,574	827
1921	14,439	15,239	29,678	20,790	2,724	23,514	6,165	....	1,004
1922	8,616	15,459	24,076	21,594	4,522	26,116	....	2,041	1,141
1923	13,001	14,555	27,555	19,359	2,252	21,611	5,944	....	599
1924	13,325	15,363	28,688	24,825	2,928	27,753	935	....	493
1925	16,053	16,095	32,148	25,719	2,623	28,342	3,806	....	987
1926	15,792	17,133	32,925	25,223	2,876	28,100	4,826	....	1,064
1927	18,894	17,858	36,752	26,135	2,810	28,946	7,806	....	1,358
1928	18,023	18,553	36,575	32,505	2,674	35,179	1,396	....	1,302
1929	18,906	21,201	40,108	30,603	2,411	33,014	7,094	....	1,358
1930	17,758	19,805	37,563	32,009	2,213	34,223	3,341	....	1,316
1931	9,165	13,639	22,804	33,306	1,550	34,856	....	12,052	1,095
1932	6,926	15,854	22,780	29,633	1,826	31,459	....	8,679	1,133
1933	9,542	16,740	26,282	28,037	1,916	29,953	....	3,671	1,122
1934	8,889	18,554	27,443	31,132	2,427	33,559	....	6,116	1,024
1935	10,203	20,290	30,493	30,002	2,650	32,652	....	2,158	1,106
1936	12,688	22,073	34,761	33,023	3,665	36,689	....	1,928	1,095
1937	14,144	24,742	38,886	34,592	6,361	40,953	....	2,067	1,029
1938	15,986	25,879	41,865	38,944	6,057	45,001	....	3,135	1,200
1939	12,275	25,329	37,604	34,149	10,815	44,964	....	7,360	1,049
1940	12,568	27,450	40,017	19,256	28,518	47,774	....	7,756	1,380
1941	9,710	27,519	37,229	16,900	30,808	47,708	....	10,479	1,971
1942	10,391	26,110	36,501	23,157	25,241	48,398	....	11,897	2,305
1943	7,383	24,803	32,186	10,625	20,117	30,741	1,445	....	1,983
1944	7,770	26,628	34,399	22,845	13,472	36,317	....	1,919	2,747
1945	9,215	26,863	36,079	24,765	11,533	36,298	....	219	2,508
1946	11,018	32,238	43,256	38,917	11,662	50,579	....	7,322	2,511
1947	18,929	42,253	61,182	46,015	11,459	57,474	3,708	....	1,966
1948	34,311	51,329	85,640	97,389	11,599	108,989	....	23,349	2,474
1949	44,075	61,182	105,258	96,982	9,495	106,477	....	1,220	4,710
1950	68,844	70,044	138,887	106,590	12,421	119,011	19,876	....	4,720
1951	80,517	95,828	176,345	197,686	18,780	216,466	....	40,122	7,249
1952	120,474	124,209	244,683	151,562	35,404	186,966	57,717	....	8,419
1953	59,748	137,213	196,961	166,286	49,659	215,945	....	18,984	10,321
1954	85,051	165,374	250,425	136,849	39,190	176,039	74,386	....	7,266
1955	101,295	182,110	283,405	137,013	47,310	184,323	99,082	....	7,865
1956	92,963	177,952	270,915	152,286	68,466	220,752	50,164	....	10,592
1957	80,423	188,680	269,103	216,599	81,545	298,144	....	29,041	12,902
1958	91,775	195,103	286,879	179,516	79,836	259,352	27,527	....	11,602
1959	89,972	202,430	292,402	174,585	68,919	243,504	48,898	....	9,482
1960	92,363	246,696	339,059	231,766	77,278	309,043	30,016	....	8,954
1961	110,531	245,474	356,005	309,332	89,922	399,254	....	43,249	10,285
1962	100,178	245,208	345,386	287,619	84,626	372,245	....	26,859	9,379
1963	112,640	313,712	426,351	246,823	91,636	338,459	87,892	....	7,904
1964	121,677	323,176	444,854	286,132	101,811	387,943	56,911	....	9,733
1965	153,540	343,899	497,439	243,078	119,954	363,033	134,407	....	9,009
1966	175,690	403,054	578,744	314,404	119,619	434,023	144,721	....	10,058
1967	159,390	474,852	634,242	421,325	116,030	537,355	96,887	....	10,936
1968	206,980	527,052	734,031	475,260	124,505	599,765	134,266	....	14,824
1969	203,533	562,312	765,846	546,366	149,892	696,258	69,588	....	14,327
1970	242,299	640,189	882,487	675,027	149,861	824,888	57,600	....	15,092
1971	278,344	726,778	1,005,122	862,421	151,093	1,013,514	....	8,392	20,561
1972	283,263	787,788	1,071,051	946,504	138,478	1,084,982	....	13,931	22,477

(a) From 1915, year ended 30 June.

(b) Excludes ships' stores.

(c) Not available.

(d) Six months ended 30 June.

## LAND TENURE; LIVESTOCK; WOOL PRODUCTION

Year	Land alienated and land in process of alienation (a)	Land held under lease or licence (a) (b)	Livestock (c)				Wool production (d)	
			Horses	Cattle	Sheep	Pigs	Quantity	Gross value (e)
	'000 acres	'000 acres	'000 (g)	'000 (g)	'000 (g)	'000 (g)	tonnes (f)	\$'000
1829	525	....	1	1	8	2	(h)	....
1830	633	....	1	2	31	3	(h)	....
1840	1,598	....	3	13	128	11	(h)	....
1850	1,330	(g)	10	32	260	13	(h)	....
1860	1,516	5,563	22	45	609	24	298	(h)
1870	1,465	12,239	35	64	1,232	29	811	....
1880	2,125	44,920	44	131	2,525	62	1,970	....
1890	5,334	104,742	68	339	2,434	58	3,161	....
1900	6,619	87,376	134	825	5,159	61	4,323	....
1910	17,330	167,208	140	844	5,412	63	13,210	2,141
1911	19,046	169,938	148	806	4,597	47	13,446	2,184
1912	20,793	175,630	157	834	4,421	48	11,512	1,870
1913	21,363	188,547	162	864	4,456	60	11,352	1,902
1914	21,649	184,221	163	821	4,804	58	11,076	1,819
1915	22,087	189,742	170	864	5,530	91	13,478	2,607
1916	21,710	196,707	178	927	6,384	112	15,011	3,926
1917	21,561	192,437	180	944	7,184	86	18,296	4,835
1918	21,568	208,049	175	881	6,698	58	20,745	6,155
1919	21,843	245,405	179	850	6,533	61	18,867	5,369
1920	23,023	257,610	180	893	6,506	63	18,947	4,552
1921	24,232	258,504	181	940	6,664	68	19,542	4,482
1922	25,756	267,620	182	954	6,596	61	18,535	6,294
1923	27,065	262,147	175	892	6,397	66	20,541	8,665
1924	28,343	209,937	171	836	6,862	74	19,697	9,151
1925	28,902	232,992	166	827	7,459	70	21,903	6,800
1926	30,278	230,562	165	847	8,447	60	25,007	7,148
1927	31,740	234,160	161	838	8,943	49	28,441	10,170
1928	33,322	237,428	160	837	9,557	65	26,701	8,027
1929	35,399	243,724	157	813	9,883	101	30,459	5,952
1930	36,039	245,390	156	827	10,098	121	32,451	4,829
1931	36,209	216,627	157	857	10,417	118	32,484	5,007
1932	35,869	206,162	160	886	10,322	91	34,086	5,198
1933	35,547	198,325	162	912	11,197	98	35,573	9,404
1934	35,090	200,588	160	883	11,083	98	40,820	6,422
1935	34,118	203,602	155	793	9,008	76	38,876	8,886
1936	32,995	203,961	151	740	8,732	65	28,820	7,306
1937	33,003	205,059	144	768	9,178	83	29,365	5,832
1938	33,009	205,992	139	799	9,574	150	32,874	5,450
1939	32,768	205,705	130	789	9,516	218	34,201	7,581
1940	32,437	209,380	124	840	9,773	163	32,362	7,889
1941	32,110	209,958	113	831	10,424	152	35,211	8,328
1942	31,864	211,536	107	871	11,013	164	43,417	11,935
1943	31,658	212,039	97	853	10,050	164	46,611	12,741
1944	31,622	212,696	88	834	9,766	138	38,166	10,512
1945	31,719	212,331	81	812	9,787	102	37,225	10,424
1946	31,781	212,163	75	816	10,444	93	36,525	16,094
1947	32,275	217,228	69	864	10,873	81	40,609	29,277
1948	32,162	222,811	59	865	10,923	79	42,533	37,720
1949	32,563	225,496	55	841	11,362	90	42,071	47,237
1950	33,395	(b)202,874	53	852	12,188	86	46,680	118,068
1951	34,352	204,893	50	846	12,475	76	52,681	64,027
1952	35,325	206,546	49	830	13,087	101	54,760	75,121
1953	36,845	205,634	47	861	13,411	107	58,497	82,567
1954	37,591	208,633	45	897	14,128	99	56,324	67,985
1955	38,017	213,621	45	957	14,887	140	67,932	69,642
1956	38,317	215,799	44	997	15,724	151	67,301	90,283
1957	38,908	220,196	41	1,000	16,215	115	68,504	75,228
1958	39,351	218,411	41	1,030	16,412	131	71,376	59,407
1959	39,980	228,103	40	1,100	17,151	176	72,979	75,302
1960	40,385	228,915	40	1,218	18,314	174	82,652	73,863
1961	41,110	233,459	39	1,298	18,727	131	83,159	79,283
1962	42,203	246,416	39	1,299	20,165	128	80,366	80,071
1963	43,204	245,532	37	1,258	22,392	137	95,053	116,331
1964	44,102	244,066	35	1,271	24,427	144	91,170	93,275
1965	45,188	245,730	(h)	1,357	27,370	161	108,116	115,183
1966	46,299	246,520	(h)	1,427	30,161	183	119,681	121,509
1967	47,425	248,538	(h)	1,546	32,901	220	131,379	116,653
1968	48,195	249,515	(h)	1,681	33,634	250	164,307	158,264
1969	48,481	248,872	29	1,781	34,709	278	144,527	120,819
1970	48,830	254,409	(h)	1,975	34,405	427	*151,808	92,009
1971	48,297	255,478	(h)	1,975	34,405	427	*169,219	*122,653

(a) From 1907 to 1946, at 30 June; for earlier years and from 1947, at 31 December. (b) Comprises allocations by Lands Department and certain leases and licences issued by Mines and Forests Departments. Apparent decrease in 1950 due mainly to revisions in records of Lands Department. (c) At 31 December for 1941 and earlier years; from 1942, the figures shown relate to 31 March in the following year. (d) Comprises shorn, dead and fellmongered wool. Excludes wool exported on skins. For 1947 and earlier, year ended 31 December; figures shown for 1948 to 1964 are for the year ended 31 March in the following year. From 1965 figures relate to the year ended 30 June in the following year. (e) Figures for 1949 and 1951 to 1955 exclude distributions of profits under the 1939-1945 War-time Wool Disposals Plan aggregating \$13,869,934. Separate State figures are not available for distributions made from 1936 to 1958 when payments were virtually complete. (f) 1 tonne = 1,000 kilograms; 1 kg = 2.2 lb approximately. (g) Less than 500. (h) Not available. \* Revised.

## AGRICULTURE

Year (a)	Total area used for crops (b)	Area and production of principal grain crops							
		Wheat				Oats		Barley	
		Area	Production			Area	Production	Area	Production
			Yield per acre	Total	Gross value				
	'000 acres	'000 acres	bushels	'000 bushels	£'000	'000 acres	'000 bushels	'000 acres	'000 bushels
1840	3	2	20·0	33					
1850	7	4	(c)	(c)					
1860	25	14	15·3	208	(c)	1	12	2	43
1870	55	27	11·9	317		2	40	5	88
1880	64	28	9·3	257		1	21	5	89
1890	70	34	13·8	467		2	39	5	85
1900	201	74	10·4	775	310	5	86	3	29
1910	855	582	10·1	5,898	2,162	62	776	3	34
1911	1,073	612	7·1	4,359	1,734	77	961	4	37
1912	1,200	793	11·6	9,169	3,209	128	2,016	6	93
1913	1,538	1,097	12·2	13,331	4,666	134	1,656	12	168
1914	1,868	1,376	1·9	2,624	1,881	96	465	7	24
1915	2,189	1,734	10·5	18,236	6,535	104	1,538	10	131
1916	2,005	1,567	10·3	16,103	6,106	122	1,689	11	134
1917	1,680	1,250	7·4	9,304	4,419	96	909	5	36
1918	1,605	1,146	7·7	8,845	4,423	141	1,500	8	81
1919	1,628	1,042	10·8	11,223	10,662	192	2,487	9	116
1920	1,805	1,276	9·6	12,248	11,023	193	2,022	11	111
1921	1,902	1,336	10·4	13,905	7,532	163	2,020	8	86
1922	2,275	1,553	8·9	13,857	6,986	214	2,262	9	108
1923	2,323	1,657	11·4	18,920	8,987	242	2,847	9	98
1924	2,711	1,868	12·8	23,887	14,532	319	4,241	12	178
1925	2,932	2,112	9·7	20,471	12,837	278	2,939	13	158
1926	3,325	2,571	11·7	31,069	17,217	235	2,716	14	128
1927	3,720	2,999	12·1	36,370	19,842	235	2,923	12	127
1928	4,259	3,344	10·1	33,790	16,473	326	3,555	14	190
1929	4,566	3,568	11·0	39,081	17,721	385	4,058	24	262
1930	4,792	3,956	13·5	53,504	12,201	275	3,293	17	185
1931	3,963	3,159	13·1	41,521	14,430	268	3,550	15	165
1932	4,263	3,389	12·3	41,792	13,554	286	3,603	14	135
1933	4,217	3,183	11·7	37,305	12,004	343	3,950	25	325
1934	3,841	2,764	9·8	26,985	10,123	409	4,244	27	238
1935	3,726	2,541	9·2	23,315	9,747	448	4,558	32	418
1936	3,852	2,575	8·4	21,549	11,902	463	3,445	40	449
1937	4,168	3,026	12·0	36,225	14,830	386	4,364	45	584
1938	4,683	3,413	10·8	36,844	8,984	426	4,668	75	946
1939	4,287	2,970	13·8	40,861	15,526	453	5,315	83	971
1940	3,988	2,625	8·0	21,060	8,648	429	3,250	66	725
1941	3,817	2,653	14·1	37,500	15,615	407	5,325	68	959
1942	2,784	1,753	11·8	20,600	10,080	342	3,612	50	533
1943	2,744	1,567	10·6	16,550	9,531	358	3,964	61	724
1944	2,756	1,516	10·5	15,929	8,319	402	3,845	76	884
1945	2,875	1,836	11·4	20,929	15,871	396	4,081	66	666
1946	3,532	2,426	9·8	23,800	22,048	425	3,661	66	519
1947	3,936	2,760	12·5	34,500	50,265	495	5,411	63	745
1948	4,102	2,868	12·6	36,250	42,122	532	6,998	64	981
1949	4,293	2,894	13·3	38,500	51,339	585	7,268	68	968
1950	4,533	3,185	15·7	49,900	65,328	586	7,914	59	925
1951	4,508	3,095	12·9	40,000	58,984	657	7,689	57	695
1952	4,637	2,999	11·8	35,458	55,194	832	10,440	107	1,742
1953	4,477	2,885	13·8	39,700	55,423	733	9,591	209	2,733
1954	5,043	2,979	11·5	34,300	43,655	874	9,585	260	2,805
1955	5,234	2,890	18·4	53,250	68,840	1,091	16,516	337	4,653
1956	5,139	2,764	11·6	32,100	44,055	1,051	10,442	344	3,751
1957	5,511	2,957	11·2	33,100	45,912	1,153	13,793	307	3,556
1958	6,015	3,292	17·5	57,650	77,639	1,330	22,585	321	5,410
1959	6,382	3,719	15·8	58,670	82,361	1,240	19,599	421	7,080
1960	6,757	4,021	15·9	63,900	92,290	1,330	21,810	541	8,496
1961	6,976	4,380	15·0	65,700	100,023	1,231	20,186	491	7,282
1962	7,327	4,804	15·1	72,500	107,023	1,177	18,572	390	6,056
1963	6,706	4,640	11·3	52,340	74,389	1,125	17,850	299	4,077
1964	7,289	5,151	12·2	63,071	88,557	1,152	14,011	303	3,701
1965	8,449	6,150	16·6	102,156	153,050	1,240	23,279	413	6,481
1966	8,558	6,347	16·3	103,195	153,157	1,204	22,117	373	6,707
1967	8,875	6,647	16·1	106,975	170,102	1,158	19,759	416	7,027
1968	9,482	7,295	15·4	112,450	151,306	1,092	22,942	553	9,187
1969	9,666	6,788	9·8	66,700	93,988	1,139	15,463	900	12,058
1970	9,454	5,835	18·6	108,650	158,033	1,284	28,657	1,562	33,922
1971	9,269	*5,046	15·8	79,556	(d)120,044	*1,122	*22,812	*2,252	*44,109

(a) Figures shown for 1942 and earlier are for the year ended last day of February in the following year; those shown for 1943 and later are for the season ended 31 March in the following year. (b) Excludes meadow hay and from 1967 also excludes lucerne. (c) Not available. (d) Preliminary; subject to revision. \* Revised.

## PRIMARY PRODUCTION—MISCELLANEOUS

Year	Hay (all kinds) (a)		Gold production (b) (c)		Coal production		Average values f.o.b.	
	Area	Production	Quantity	Value (d)	Quantity	Value	Wool (greasy) per kg (e)	Wheat per bushel (f)
	'000 acres	'000 tons	'000 fine oz	\$'000	'000 tons	\$'000	cents	cents
1860	6	8	....	....	....	....	(g)	53·96
1870	17	21	....	....	....	....	....	....
1880	20	20	....	....	....	....	....	50·00
1890	23	25	20	171	....	....	....	....
1900	104	104	1,414	12,015	118	110	....	15·00
1910	175	179	1,471	12,494	262	227	16·20	40·42
1911	344	300	1,371	11,646	250	222	16·20	34·58
1912	232	256	1,283	10,897	295	272	16·20	39·79
1913	247	279	1,314	11,163	314	307	16·71	37·08
1914	332	157	1,233	10,475	319	297	16·42	36·87
1915	290	395	1,210	10,280	287	276	14·99	69·79
1916	241	237	1,061	9,017	302	296	19·22	48·54
1917	266	267	970	8,243	327	384	25·66	46·67
1918	250	250	877	7,446	337	409	22·13	50·21
1919	327	379	734	7,498	402	521	28·68	53·75
1920	267	264	618	6,951	462	701	28·26	71·67
1921	336	369	554	5,907	469	814	24·07	73·33
1922	432	457	538	5,052	438	763	22·95	55·00
1923	330	368	505	4,464	421	738	33·60	50·42
1924	398	449	485	4,512	422	727	41·78	47·50
1925	391	355	441	3,749	437	726	45·97	60·83
1926	358	424	437	3,715	475	789	30·78	62·71
1927	357	417	408	3,469	502	816	28·31	55·21
1928	415	422	393	3,342	528	840	35·52	54·58
1929	419	428	377	3,204	545	853	29·87	50·62
1930	398	492	418	3,729	501	770	19·37	45·42
1931	381	453	511	5,996	432	672	14·77	22·92
1932	417	485	606	8,807	416	541	15·50	31·25
1933	480	512	637	9,773	458	580	15·74	30·42
1934	413	463	651	11,118	500	557	28·75	29·37
1935	494	505	649	11,404	537	636	17·73	32·08
1936	478	413	846	14,747	565	663	24·98	39·79
1937	432	450	1,001	17,488	554	681	29·70	55·21
1938	408	438	1,168	20,726	605	750	24·25	41·04
1939	396	476	1,214	23,686	558	726	19·58	24·37
1940	418	375	1,191	25,393	539	729	25·68	30·45
1941	325	414	1,109	23,703	557	779	28·70	39·43
1942	253	278	848	17,731	581	923	28·64	41·14
1943	282	314	546	11,421	532	979	32·19	41·08
1944	329	339	466	9,800	558	1,166	34·81	48·21
1945	281	287	469	10,021	543	1,146	34·24	63·40
1946	277	280	617	13,280	642	1,460	34·92	86·57
1947	229	268	704	15,151	731	1,680	45·64	131·77
1948	227	277	665	14,314	733	1,760	76·41	175·07
1949	216	272	648	15,926	751	1,944	94·20	152·70
1950	177	227	610	18,933	814	2,575	105·91	155·20
1951	174	212	628	19,451	848	3,434	263·50	169·41
1952	227	290	730	23,696	830	4,915	138·10	170·48
1953	219	294	824	26,598	886	6,146	148·04	173·02
1954	289	305	851	26,627	1,018	7,178	156·20	165·75
1955	269	384	842	26,749	904	6,179	135·39	142·12
1956	242	288	812	26,405	830	5,448	112·66	126·73
1957	339	386	897	29,102	839	5,105	144·67	130·97
1958	333	455	867	28,357	871	4,561	130·80	153·36
1959	319	433	867	28,388	911	4,713	91·87	140·88
1960	284	381	856	28,140	922	4,878	115·37	134·67
1961	294	396	872	28,584	766	3,361	99·10	135·82
1962	340	453	859	28,115	919	3,962	109·80	141·25
1963	289	389	800	26,375	902	3,970	111·38	142·34
1964	305	390	713	23,383	987	4,679	134·47	141·55
1965	291	414	659	22,381	994	4,410	120·58	140·60
1966	295	417	629	23,316	1,061	4,562	116·00	139·13
1967	318	421	576	21,690	1,062	4,765	117·46	149·35
1968	341	500	512	19,407	1,087	4,817	105·69	139·64
1969	500	508	481	19,040	1,103	4,853	107·60	139·51
1970	469	662	396	15,811	1,159	5,407	98·11	129·86
1971	437	643	359	14,237	1,171	5,653	75·33	133·04
1972	(j)	(j)	349	14,897	1,169	5,855	74·94	134·77

(a) See footnote (a) on preceding page. (b) Comprises gold refined at the Mint and gold contained in gold-bearing materials exported. (c) From 1969 figures relate to year ended 30 June. (d) Includes amounts, totalling \$9,975,256 for the years 1952 to 1972, distributed by the Gold Producers' Association Ltd. from premiums on sales of Western Australian gold. Also includes net subsidy payments by the Commonwealth Government, under the *Gold Mining Industry Assistance Act 1954-1972*, totalling \$29,228,912 in the years 1955 to 1972. (e) From 1915 figures relate to year ended 30 June. 1 kilogram = 2·2 lb approximately. (f) Prior to 1940 averages generally are based on exports of the previous season's wheat; from 1940 they relate to exports during the year ended 30 June. (g) Not available. (h) For six months ended 30 June. (i) Exports negligible; average Metropolitan Market price shown. (j) Not available at time of publication.

**VALUE OF PRIMARY PRODUCTION**  
(Excluding Mining and Quarrying)  
(\$'000)

Year (a)	Gross value of primary production (excluding mining and quarrying) (b)							Net value of primary production (excluding mining and quarrying) (c) (e)
	Agriculture	Dairying poultry farming and bee keeping	Pastoral (c)	Hunting	Forestry	Fisheries (d)	Total	
1914	6,194	1,122	(f) 4,115					
1915	13,059	1,173	(f) 6,060					
1916	11,779	1,383	(f) 7,340					
1917	8,513	1,332	(f) 8,959					
1918	9,516	1,396	(f) 9,088		(g)	(g)	(g)	(g)
1919	18,133	1,687	(f) 9,544					
1920	17,466	2,065	(f) 9,008					
1921	13,853	2,265	(f) 8,032					
1922	12,992	2,350	(f) 10,584					
1923	15,076	2,483	(f) 13,027			642		
1924	22,367	2,726	(f) 13,419			764		
1925	19,510	2,507	(f) 11,537		4,126	970	38,651	26,790
1926	24,187	2,503	(f) 11,262		3,367	580	41,899	29,222
1927	26,068	2,687	(f) 14,687		2,906	516	46,865	33,088
1928	23,884	2,936	(f) 13,501		2,463	561	43,344	28,930
1929	24,504	3,443	(f) 10,800		2,159	544	41,450	23,733
1930	17,756	3,170	(f) 8,845		1,809	485	32,066	13,977
1931	20,985	3,311	(f) 8,023		1,312	427	34,058	18,918
1932	20,495	3,338	(f) 8,057		1,183	430	33,502	17,709
1933	19,022	3,315	(f) 13,369		1,648	406	37,759	22,238
1934	16,336	3,927	9,329	127	2,399	373	32,491	19,174
1935	17,045	3,897	12,439	200	2,653	372	36,606	22,976
1936	18,871	4,170	11,016	421	3,032	465	37,974	24,841
1937	21,071	4,494	9,947	193	2,957	592	39,254	24,479
1938	17,077	4,716	9,326	131	2,899	561	34,711	19,407
1939	23,198	4,855	11,463	139	2,660	562	42,877	27,254
1940	14,760	5,230	11,460	241	3,160	539	38,391	20,765
1941	22,219	5,960	11,958	276	2,950	479	43,843	27,630
1942	18,106	7,664	16,155	190	3,277	255	45,647	30,961
1943	18,505	7,971	18,156	225	3,150	347	48,353	33,073
1944	20,856	8,473	15,385	215	3,152	330	48,411	33,907
1945	26,310	8,709	15,948	281	3,358	438	55,044	39,418
1946	32,635	8,933	21,986	465	3,305	635	67,959	50,237
1947	64,699	9,790	37,036	395	3,649	1,135	116,703	95,440
1948	58,785	11,964	46,254	517	4,024	1,379	122,924	96,436
1949	69,686	12,975	58,687	393	4,501	1,432	147,674	118,334
1950	87,752	14,155	131,921	499	6,741	1,649	242,716	204,544
1951	86,791	18,778	79,955	488	8,517	2,505	197,034	151,452
1952	87,127	21,289	90,639	461	7,155	3,286	209,956	156,303
1953	86,533	22,328	101,567	609	7,678	3,808	222,523	166,211
1954	77,164	21,762	87,435	335	8,116	4,383	199,195	140,799
1955	109,709	22,433	89,293	361	10,474	4,915	237,185	172,142
1956	80,170	23,240	112,885	277	10,305	5,563	232,441	168,050
1957	87,293	23,500	94,118	175	11,046	6,530	222,662	153,299
1958	126,672	22,838	81,639	125	10,903	7,818	249,995	171,083
1959	131,052	24,696	100,255	288	10,919	8,621	275,831	194,365
1960	140,003	25,917	101,051	579	11,082	8,569	287,201	201,580
1961	148,765	26,400	105,310	511	11,104	10,689	302,779	216,761
1962	157,948	27,387	107,280	376	10,877	11,219	315,087	223,576
1963	123,342	28,723	148,701	632	11,462	10,187	323,047	235,973
1964	139,426	30,884	125,837	775	12,093	15,218	324,233	234,564
1965	215,949	32,899	157,249	836	12,731	15,733	435,397	328,298
1966	218,206	33,022	159,857	986	13,300	16,525	441,895	323,275
1967	234,020	35,485	158,754	1,236	14,076	21,954	465,524	330,396
1968	218,643	38,801	210,780	1,211	13,465	23,717	506,617	358,248
1969	156,738	40,459	176,387	1,098	13,632	19,660	407,974	264,283
1970	262,391	42,330	146,198	834	16,174	25,127	493,054	*339,000
1971 (h)	219,624	46,049	199,444	838	15,958	30,649	512,561	364,117

(a) Figures generally are for the season or financial period ending in the following year. (b) Represents the estimated value of recorded production based on wholesale prices realised at the principal market. (c) In addition, the following amounts were paid as interim distribution of profits under the 1939-1945 War-time Wool Disposals Plan: in 1949, \$3,629,478; in 1951, \$3,629,478; in 1952, \$2,325,324; in 1953, \$368,104; in 1954, \$2,120,460; and in 1955, \$1,797,090. Separate State figures are not available for distributions made from 1956 to 1958 when payments were virtually complete. (d) Includes pearling and whaling. (e) Net value of production is derived by deducting from the gross value all marketing costs and the cost of certain goods (seeds, fertiliser, pickling, sprays, dips, fodder, fuel and oil, etc.) used in the process of production. (f) Separate details not available. (g) Not available. (h) Preliminary figures; subject to revision. \* Revised.

## FACTORIES (a)

Year (b)	Factories	Persons employed (c)	Salaries and wages (d)	Output (e)	Net production (f)	Production of selected commodities							
						Bricks (g)	Fibrous plaster sheets	Timber from local logs (h)	Bacon and ham	Butter (i)	Flour (plain)	Cheese	Scoured wool
	No.	No.	\$'000	\$'000	\$'000	'000	'000 sq yd	'000 sup. ft	tons	tons	short tons (j)	tons	tonnes (k)
1897 ....	487	9,689	(l)	—	—	36,564	—	85,053	—	121	7,314	—	—
1898 ....	595	9,895	(l)	—	—	26,811	—	103,043	—	118	8,460	—	—
1899 ....	603	10,206	2,496	(l)	(l)	18,565	—	118,052	—	132	10,042	—	—
1900 ....	632	11,166	2,589	—	—	25,234	—	112,693	—	130	12,339	—	—
1910 ....	822	14,894	3,532	10,158	5,472	23,162	—	174,528	(l)	286	36,818	—	—
1911 ....	880	16,754	4,171	11,863	6,567	28,687	—	198,977	—	222	40,642	—	—
1912 ....	891	17,425	4,579	13,652	7,165	34,432	—	217,696	—	200	49,319	—	—
1913 ....	984	18,372	4,675	14,597	7,524	35,085	—	218,908	—	231	61,997	—	—
1914 ....	989	18,799	4,949	14,445	7,667	34,854	—	227,297	—	201	61,922	—	—
1915 ....	983	15,882	3,871	14,125	6,468	21,667	—	123,494	—	320	32,396	—	—
1916 ....	953	13,844	3,600	14,693	6,294	18,585	—	100,356	—	482	70,912	—	—
1917 ....	944	13,350	3,486	15,324	6,199	17,488	—	85,218	—	608	102,300	—	—
1918 ....	862	13,849	3,726	16,799	6,318	15,672	—	94,990	1,028	397	119,876	—	—
1919 ....	922	16,358	4,636	20,573	7,645	21,092	—	131,477	1,000	445	141,516	(l)	(l)
1920 ....	998	16,942	6,073	26,283	9,708	31,838	—	137,934	837	544	120,125	—	—
1921 ....	1,099	18,151	7,136	25,689	10,479	23,548	(l)	183,663	772	684	82,148	—	—
1922 ....	1,323	18,743	7,426	25,741	11,580	28,509	—	179,059	801	678	94,316	—	—
1923 ....	1,307	19,805	7,731	27,409	12,257	34,864	—	192,547	969	766	107,990	—	—
1924 ....	1,293	21,671	8,673	31,453	13,917	34,930	—	207,137	1,164	741	122,192	—	—
1926 (m) ..	1,170	20,667	13,175	42,890	19,222	53,336	—	328,935	1,875	836	190,369	—	—
1927 ....	1,216	19,403	8,303	31,343	13,814	45,204	—	229,195	1,123	1,100	133,919	—	—
1928 ....	1,398	20,435	9,003	33,996	15,380	52,992	—	227,631	1,157	1,111	127,246	—	—
1929 ....	1,469	20,913	9,351	34,909	15,937	60,568	—	174,324	1,089	1,617	119,550	—	—
1930 ....	1,466	19,643	8,310	33,783	14,976	47,720	—	159,643	1,161	2,109	120,595	—	—
1931 ....	1,455	14,619	5,774	24,707	10,562	13,630	—	112,484	1,300	3,171	132,090	—	—
1932 ....	1,490	13,392	4,671	22,375	9,212	15,101	—	57,690	1,297	3,727	131,165	—	—
1933 ....	1,499	14,810	5,083	24,655	10,124	25,673	—	59,254	1,542	4,224	127,574	—	—
1934 ....	1,606	16,154	5,505	25,755	10,889	31,717	—	96,428	1,901	4,386	122,000	127	1,324
1935 ....	1,658	17,769	6,222	29,283	12,570	37,552	—	130,497	2,035	4,992	124,130	286	1,633
1936 ....	1,946	20,972	7,408	35,057	15,008	50,498	—	154,989	2,373	4,896	118,340	385	1,533
1937 ....	2,032	22,712	8,315	36,626	15,893	53,270	1,084	176,321	1,941	4,751	122,723	451	1,129
1938 ....	2,066	23,133	8,803	39,288	17,125	57,598	953	176,718	1,945	6,117	125,472	394	1,358
1939 ....	2,129	23,211	9,147	39,097	17,551	53,062	882	161,315	1,881	6,542	137,553	436	1,673
1940 ....	2,129	22,967	9,150	40,615	18,055	43,786	784	152,453	2,073	6,251	140,849	376	2,459
1941 ....	2,056	22,734	9,441	43,650	18,034	45,505	833	146,847	2,288	6,352	149,925	424	3,867
1942 ....	1,938	23,980	10,999	47,904	20,201	34,247	494	146,013	2,729	6,991	135,338	580	2,709
1943 ....	1,799	25,813	12,956	53,475	22,906	8,926	183	138,878	4,106	6,446	126,274	723	3,455
1944 ....	1,807	28,101	14,835	58,417	25,023	6,296	243	121,630	4,322	6,155	159,799	791	4,437
1945 ....	1,931	29,146	15,228	63,481	25,920	10,003	365	116,330	4,971	5,676	161,690	822	4,274
1946 ....	2,280	30,256	15,768	68,046	27,653	24,150	654	117,995	4,573	5,604	166,791	811	3,899
1947 ....	2,615	33,806	18,210	76,540	31,497	37,758	1,097	139,842	4,603	5,956	176,726	1,017	5,417
1948 ....	2,788	35,967	21,471	91,252	36,768	44,986	1,217	148,695	3,955	6,974	195,497	1,019	5,334
1949 ....	2,925	38,354	25,856	106,835	42,948	50,378	1,446	142,285	3,553	6,966	181,466	870	6,467
1950 ....	3,023	40,733	30,586	127,956	52,088	58,943	1,655	153,813	3,542	6,769	159,495	701	7,110
1951 ....	3,111	43,761	39,316	168,862	68,441	67,312	2,068	176,207	3,558	6,797	217,345	748	5,828
1952 ....	3,267	45,097	50,769	213,143	85,491	76,884	2,375	199,447	3,680	6,705	221,846	624	5,884
1953 ....	3,424	45,188	56,687	238,620	98,383	86,043	2,436	223,325	3,693	6,480	224,330	895	6,162
1954 ....	3,523	47,459	63,181	269,174	110,294	101,240	2,349	241,011	3,448	6,142	187,958	1,205	6,914
1955 ....	3,727	49,314	69,476	299,169	121,912	115,412	2,517	251,493	3,316	7,145	165,767	1,083	7,226
1956 ....	3,871	50,108	74,413	350,293	139,466	102,359	2,172	245,138	3,231	7,404	179,362	763	9,483
1957 ....	3,935	48,748	73,833	375,272	146,884	101,209	1,492	228,427	3,054	7,462	169,535	1,182	11,044
1958 ....	3,941	48,462	75,870	392,525	150,624	111,082	1,506	233,173	2,952	6,807	148,148	1,017	11,708
1959 ....	4,125	48,417	77,464	392,405	157,524	101,521	1,349	237,779	2,955	6,166	139,702	1,181	12,791
1960 ....	4,279	49,651	83,285	431,165	172,747	110,359	1,423	225,461	3,177	7,376	150,774	1,443	15,271
1961 ....	4,334	50,666	90,255	481,140	193,262	119,998	1,494	210,316	3,163	7,661	168,237	1,351	13,420
1962 ....	4,418	51,033	92,840	486,988	196,083	119,868	1,446	213,948	3,500	7,483	141,103	1,364	14,459
1963 ....	4,492	53,435	99,880	517,899	216,422	131,176	1,578	205,835	3,837	6,963	135,911	1,439	13,312
1964 ....	4,609	55,705	108,515	555,058	230,511	155,792	1,642	218,911	3,780	6,915	143,296	1,506	12,464
1965 ....	4,734	58,097	119,978	616,422	260,637	146,057	1,597	233,254	3,383	7,762	134,378	1,809	12,040
1966 ....	4,906	60,282	134,171	678,751	288,803	140,611	1,716	233,747	4,288	8,095	113,665	1,211	12,107
1967 ....	5,167	63,575	153,597	765,224	335,768	163,166	1,743	225,735	4,580	6,426	101,109	1,699	12,148
1968 ....	5,404	67,335	175,100	887,372	388,257	207,575	1,954	236,174	5,091	5,914	110,692	1,952	12,662
1969 (n) ..	2,713	62,613	183,168	919,555	368,473	274,318	2,030	188,294	5,417	6,222	108,140	1,990	14,385
1970 (n) ..	2,705	62,597	208,410	1,028,778	420,499	284,256	2,147	190,845	5,739	5,810	103,727	1,691	14,930
1971 ....	(l)	(l)	(l)	(l)	(l)	240,323	1,857	190,265	6,081	5,339	106,275	1,887	10,724
1972 ....	(l)	(l)	(l)	(l)	(l)	228,942	1,749	172,474	6,387	5,883	92,243	1,885	16,411

(a) Prior to 1968-69 a factory was defined for statistical purposes as any establishment engaged in the processes of manufacturing, assembling, treating or repairing and in which 4 or more persons were employed during any period of the year or power other than manual was used. See also footnote (n). (b) For 1924 and earlier, calendar year; from 1927, year ended 30 June. See also note (m). (c) Average over the whole year; includes working proprietors and, up to and including 1925-26, fallers and haulers employed by sawmills. (d) Figures for 1929-30 and later years exclude amounts drawn by working proprietors. (e) Selling value 'at the factory'. (f) Value added in course of manufacture, representing sum available for payment of wages, rent, depreciation, other sundry expenses and for interest and profit. (g) For years prior to 1964-65, figures include all types of standard size bricks. Prior to 1925-26, they also include firebricks and blocks. From 1964-65 figures represent clay bricks only (all sizes). (h) Includes plywood veneers in terms of superficial feet and hewn timber produced by agencies other than 'Factories'. (i) For 1917 and earlier years, includes butter made on farms. (j) Short ton = 2,000 lb. (k) 1 tonne = 1,000 kilograms. 1 kg = 2.2 lb approximately. (l) Not available. (m) Eighteen months ended 30 June. (n) Direct comparisons of statistics of number of factories, persons employed, salaries and wages, output and net production with those for 1968 and earlier years are not possible (for details see pages 400-1).

## CONSUMER PRICE INDEX (a)

(Base of each Index: Year 1966-67 = 100)

Year (b)	Group index numbers— Perth (Metropolitan Area)					Combined index (all groups)— Capital Cities						
	Food	Clothing and drapery	Housing	House- hold supplies and equip- ment	Miscel- laneous	Perth	Sydney	Mel- bourne	Bris- bane	Adel- aide	Hobart	Six capital cities (c)
1949	38.4	50.6	36.1	60.4	45.4	44.0	44.4	43.3	43.1	45.0	43.0	43.9
1950	42.5	58.3	38.2	64.6	46.6	48.0	48.1	47.1	46.6	48.4	45.8	47.6
1951	48.8	66.7	42.9	71.0	50.4	53.9	54.6	53.1	52.2	54.6	51.9	53.8
1952	60.8	80.8	50.2	84.2	60.8	65.6	67.4	64.7	63.8	66.8	64.0	65.9
1953	69.7	84.8	57.6	90.9	67.1	72.5	73.4	71.1	69.5	73.1	70.9	72.1
1954	74.0	84.8	62.0	92.7	66.8	74.6	74.5	72.5	70.9	74.7	74.4	73.5
1955	76.1	84.9	68.6	92.8	66.8	76.3	75.0	72.5	71.4	75.6	74.3	74.0
1956	77.4	86.0	71.3	92.7	70.8	78.3	77.5	76.8	73.8	78.1	78.1	77.0
1957	80.9	87.4	71.1	95.0	78.5	81.8	82.8	81.0	77.8	81.2	82.8	81.5
1958	79.7	89.6	72.5	96.0	79.4	82.4	84.0	81.3	79.4	81.8	82.9	82.3
1959	80.3	90.8	75.0	96.3	79.6	83.2	84.6	82.9	82.1	83.6	84.1	83.6
1960	82.5	91.7	76.9	97.3	81.1	84.8	86.5	85.3	84.2	86.2	85.6	85.7
1961	86.7	93.9	81.6	97.5	84.0	87.9	89.6	89.5	87.1	89.8	90.3	89.2
1962	86.1	94.7	84.3	97.6	84.0	88.2	89.9	89.8	88.4	89.5	90.7	89.6
1963	86.4	95.0	86.9	97.3	84.2	88.7	90.4	89.7	88.7	89.1	90.7	89.8
1964	87.4	95.7	89.8	95.7	86.2	89.8	91.4	90.4	89.6	90.2	91.7	90.6
1965	91.0	96.8	92.1	96.7	90.0	92.6	94.5	94.0	93.0	93.9	94.6	94.0
1966	95.2	97.9	95.4	98.3	95.3	96.1	97.7	97.5	97.5	97.0	98.0	97.4
1967	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1968	102.9	102.1	105.8	100.7	103.2	102.9	103.2	103.7	103.3	102.9	104.6	103.3
1969	104.5	104.5	112.7	102.1	105.6	105.5	106.2	106.2	105.5	105.3	106.1	106.0
1970	108.1	107.8	120.1	103.7	109.8	109.4	110.6	108.7	108.4	108.2	108.5	109.4
1971	112.5	112.3	125.7	107.7	114.8	114.1	116.8	113.1	114.2	112.5	112.6	114.6
1972	116.4	118.9	133.7	112.7	124.5	120.7	125.9	119.7	121.6	119.2	119.3	122.2

(a) The index numbers shown are so designed as to measure periodically the movement in retail prices of the specified groups of items in each capital city individually. They do not provide a measure of differences in absolute price level as between capital cities, nor of comparative costs of the groups of items. (b) Year ended 30 June. (c) Weighted average.

## NEW BUILDINGS COMPLETED

Year ended 30 June—	Houses		Flats (a)		Other new buildings (b)				Total, all new buildings (b)
	Number	Value (b)	Number	Value (b)	Factories	Office premises	Education	Total, Other new buildings	
1946	860	\$'000 1,452	2	\$'000 4	\$'000 144	\$'000	\$'000	\$'000 492	\$'000 1,948
1947	1,792	3,516	....	....	98	....	....	716	4,232
1948	2,771	5,784	....	....	176	....	....	872	6,656
1949	3,244	7,592	....	....	440	....	....	1,822	9,414
1950	3,509	8,974	101	194	446	....	....	1,536	10,704
1951	5,160	15,032	305	606	410	(c)	(c)	2,258	17,896
1952	6,577	24,466	215	300	1,402	....	....	4,086	28,852
1953	7,965	37,988	100	334	1,668	....	....	7,514	45,836
1954	7,627	39,768	212	834	1,734	....	....	10,968	51,570
1955	8,792	48,422	316	1,176	6,250	....	....	18,594	68,192
1956	7,760	45,084	584	2,564	3,756	....	....	19,708	67,356
1957	5,030	29,054	365	1,502	2,210	2,002	2,162	16,292	46,848
1958	6,196	36,526	171	712	2,526	3,906	1,110	17,286	54,524
1959	5,846	34,410	212	840	2,792	2,384	4,584	25,274	60,524
1960	5,997	35,454	263	986	2,368	1,544	5,838	23,800	60,240
1961	5,973	38,102	440	1,580	4,736	4,118	7,956	32,368	72,050
1962	6,082	39,470	265	1,342	3,038	2,902	6,014	27,260	68,072
1963	6,593	45,780	642	2,984	4,912	1,588	7,724	37,664	86,428
1964	7,276	51,774	1,295	5,596	5,384	5,996	6,226	35,498	92,868
1965	7,445	57,238	1,841	9,046	6,816	2,820	8,044	40,816	107,100
1966	7,265	58,089	1,624	9,096	9,631	10,576	8,459	62,993	130,178
1967	8,272	78,078	1,742	9,322	9,841	7,093	10,477	74,735	162,135
1968	9,858	97,370	2,392	12,577	15,061	14,608	12,051	85,456	195,403
1969	12,840	133,276	3,491	22,406	15,845	10,885	14,122	99,152	254,833
1970	13,933	151,300	5,596	40,519	16,615	14,294	13,297	111,577	303,397
1971	11,921	149,671	5,013	39,964	18,006	39,736	20,589	175,377	365,012
1972	13,287	166,736	1,595	13,914	21,336	19,360	16,325	150,790	331,440

(a) Individual living units.

(b) Excludes the value of land.

(c) Not available.

## INDUSTRIAL DISPUTES; WAGE RATES; UNEMPLOYMENT BENEFIT

Year	Industrial disputes (a)				State basic wage per week (b)		Minimum wage rate index numbers (c)		Unemployment benefit (d)	
	Number of disputes	Workers involved (e)	Working days lost (man-days)		Perth (f)		Adult males (g)		Persons on benefit (h)	
			Number	Average per worker involved	Adult males	Adult females	Weekly	Hourly		
1913	9	'000	'000	12.92	\$	\$				
1914	18	1.0	12.5	28.16						
1915	6	4.4	124.2	4.1						
1916	24	0.6	4.1	6.30						
1917	23	9.1	102.1	11.22						
1918	22	2.9	102.3	34.70						
1919	20	4.8	22.4	4.67						
1920	45	10.0	348.7	34.96	(i)	(i)				
1921	12	12.0	166.6	13.87						
1922	8	12.1	145.1	12.03						
1923	6	0.8	43.5	53.94						
1924	13	4.0	72.3	18.04						
1925	10	3.5	66.7	19.08						
1926	9	4.1	98.9	23.93			(j)	(j)		
1927	20	0.6	9.1	15.11	8.50	4.59				
1928	11	3.4	23.8	7.02	8.50	4.59				
1929	4	2.5	54.9	21.72	8.50	4.59				(j)
1930	2	0.9	2.7	3.05	8.70	4.70				
1931	13	0.5	27.1	57.85	8.60	4.64				
1932	8	3.9	24.0	6.12	7.35	3.97				
1933	10	2.7	11.1	4.16	7.05	3.81				
1934	10	3.9	16.9	4.31	6.92	3.74				
1935	11	3.5	17.8	5.11	7.10	3.83				
1936	19	3.6	72.0	19.98	7.05	3.81				
1937	12	4.7	32.4	6.87	7.38	3.98				
1938	7	1.7	14.4	8.65	7.49	4.04				
1939	4	3.6	43.8	12.01	8.11	4.38				
1940	4	1.3	14.1	11.25	8.22	4.43	35.6	32.0		
1941	3	3.0	7.4	2.44	8.53	4.61	36.8	33.1		
1942	8	0.3	0.8	2.79	9.04	4.88	39.0	35.4		
1943	10	1.8	8.9	4.89	9.78	5.28	47.5	37.6		
1944	30	2.5	38.4	15.11	10.11	5.46	42.8	38.8		
1945	16	11.0	90.0	8.16	9.99	5.39	42.6	38.6		
1946	11	3.8	32.5	8.55	10.01	5.41	42.6	38.7		
1947	7	6.4	69.6	10.94	10.21	5.51	43.6	39.5		422
1948	9	1.8	6.1	3.44	11.08	5.98	48.4	44.1		1,095
1949	16	2.4	7.8	3.33	12.16	6.57	53.9	53.9		409
1950	15	5.7	26.3	4.64	13.59	7.34	59.6	59.7		126
1951	10	2.0	5.7	2.93	16.65	9.41	71.0	71.1		267
1952	21	4.2	5.1	1.22	20.57	13.37	85.5	85.7		60
1953	11	19.2	127.8	6.67	23.85	15.50	97.5	97.7		57
1954	15	3.7	5.0	1.36	24.65	16.02	100.4	100.7		844
1955	16	5.5	21.7	3.94	24.65	16.02	101.7	101.9		427
1956	14	9.8	9.6	0.97	25.24	16.41	106.3	106.6		157
1957	14	11.1	31.9	2.87	26.52	17.23	110.8	111.0		473
1958	20	5.4	3.1	0.57	27.28	17.72	113.9	114.1		1,940
1959	20	11.0	3.0	0.27	27.34	17.78	114.7	114.9		2,330
1960	43	11.2	11.2	1.00	28.15	18.30	120.7	120.8		2,852
1961	22	25.7	27.3	1.06	29.46	22.09	126.8	127.1		2,512
1962	28	9.7	23.2	2.40	29.88	22.41	128.8	129.0		2,154
1963	28	8.4	6.3	0.75	29.88	22.41	129.5	129.7		2,932
1964	26	42.6	32.0	0.75	30.15	22.61	132.8	133.0		2,674
1965	33	6.2	7.1	1.16	31.12	23.34	137.5	137.6		2,677
1966	25	12.6	10.0	0.79	31.96	23.97	143.4	143.5		1,679
1967	26	2.9	6.2	2.17	33.50	25.13	153.6	153.8		785
1968	70	5.1	6.0	1.18	(k)	(k)	159.6	159.9		718
1969	104	18.7	21.8	1.16	35.45	27.08	169.0	168.7		608
1970	125	59.1	101.4	1.72	36.45	27.88	179.5	179.3		524
1971	132	46.5	141.1	3.03	38.45	29.40	*198.2	*198.0		474
1972	105	35.8	69.4	1.94	39.45	30.90	(l) 219.7	(l) 219.7		872
		28.3	94.6	3.34	40.45	32.40	(l) 232.1	(l) 231.7		2,808

(a) Excludes disputes involving cessation of work of less than 10 man-days. Details of the number of disputes and workers involved in disputes which commenced in any year and were still in progress during the following year are included in the figures for both years. (b) At 31 December. (c) End of December. Base: weighted average wage rate for Australia, 1954 = 100. (d) Payment commenced 1 July 1945. (e) Includes workers indirectly involved, i.e. those thrown out of work at an establishment where a stoppage occurred but not themselves parties to the dispute. (f) The rates shown for 1964 and later apply uniformly throughout the State. (g) Excludes workers in rural industry. (h) Year ended 30 June; average number of persons on benefit at end of each week. (i) The first State basic wage operated from the beginning of the first pay-period commencing on or after 1 July 1926. (j) Not available. (k) Special loading of 60 cents a week added to award rates for adult males and adult females operative from the beginning of the first pay-period commencing on or after 1 July 1967. Loading increased to \$1.95 operative from the beginning of the first pay-period commencing on or after 25 October 1968 until 22 November 1968 when loading was absorbed in basic wage. (l) Preliminary; subject to revision. \* Revised.

## WESTERN AUSTRALIA IN RELATION TO AUSTRALIA

Particulars	Unit	Date or period	Western Australia	Australia	Percentage (a)
Area .....	sq miles	n.a.	975,920	2,967,909	32.9
Proportion of area having rainfall—					
Under 10 in. ....	per cent	n.a.	58.0	39.0	n.a.
10 in. and under 20 in. ....	per cent	n.a.	29.2	31.8	n.a.
20 in. and over .....	per cent	n.a.	12.8	29.2	n.a.
Population .....	number	June 1972	1,053,182	12,959,084	8.1
Population increase .....	number	1971-72	22,713	203,446	11.2
Rate of population increase .....	per cent	1971-72	2.20	1.59	n.a.
Births registered .....	number	1971-72	23,152	271,960	8.5
Deaths registered .....	number	1971-72	7,518	110,191	6.8
Marriages registered .....	number	1971-72	9,249	116,234	8.0
Divorce—Decrees absolute .....	number	1971	1,064	12,947	8.2
Wage and salary earners (c) .....	'000	Feb. 1973	348.9	4,605.8	7.6
Average weekly earnings per employed male unit .....	\$	1971-72	93.60	93.00	n.a.
Unemployed on benefit .....	number	Mar. 1973	3,949	34,511	11.4
Industrial disputes—Working days lost .....	'000	1972	(b) 94.6	(b) 2,010.3	4.7
Trade union membership .....	'000	1971	178.3	2,436.6	7.3
Rural holdings .....	number	1971-72	21,997	(b) 247,410	8.9
Area under crop .....	'000 acres	1971-72	9,269	(b) 35,233	26.3
Area under established pasture .....	'000 acres	1971-72	16,863	(b) 68,439	24.6
Area under irrigation .....	'000 acres	1970-71	78.1	3,908	2.0
Area of—					
Wheat for grain .....	'000 acres	1971-72	5,046	(b) 17,639	28.6
Oats for grain .....	'000 acres	1971-72	1,122	(b) 3,076	36.5
Barley for grain .....	'000 acres	1971-72	2,252	(b) 6,265	35.9
Hay .....	'000 acres	1971-72	437	(b) 3,679	11.9
Pasture seed harvested (d) .....	'000 acres	1971-72	51	(b) 279	18.3
Fruit and vineyards .....	'000 acres	1970-71	30	462	6.5
Cotton .....	'000 acres	1971-72	10	(b) 96	10.4
Livestock—					
Sheep .....	'000	Mar. 1972	34,405	(b) 162,939	21.1
Cattle .....	'000	Mar. 1972	1,975	(b) 27,377	7.2
Pigs .....	'000	Mar. 1972	427	(b) 3,198	13.4
Wool production (e) .....	tonne (f)	1971-72	178,162	(b) 899,200	19.8
Meat production (g) .....	'000 tons	1971-72	199	(b) 2,282	8.7
Whole milk production .....	million gal	1971-72	59	(b) 1,568	3.8
Butter production .....	million lb	1971-72	13.2	(b) 431.6	3.1
Fish (live weight) .....	'000 lb	1971-72	13,065	125,386	10.4
Crustaceans (live weight) .....	'000 lb	1971-72	23,850	68,771	34.7
Sawn timber produced (h) .....	mil. sup. ft	1971-72	172	1,452	11.8
Net value of primary production (excluding mining and quarrying)—					
Agriculture .....	\$m	1971-72	(b) 145	(b) 1,156	12.6
Pastoral .....	\$m	1971-72	(b) 156	(b) 1,187	13.2
Other primary .....	\$m	1971-72	(b) 62	(b) 781	8.0
Mining establishments—Value added (i) .....	\$m	1970-71	386	1,281	30.1
Gold bullion .....	'000 oz	1970-71	467	606	77.1
Iron ore production .....	'000 tons	1971-72	52,402	61,762	84.9
Bauxite production .....	'000 tons	1971-72	(j) 4,741	13,632	34.8
Black coal production .....	'000 tons	1971-72	(j) 1,169	52,886	2.2
Crude oil production .....	'000 barrels	1971-72	(k) 15,976	119,766	13.3
Manufacturing establishments (l)—					
Number (l) .....	.....	1969-70	2,791	37,021	7.5
Persons employed (l) .....	'000	1969-70	64.7	1,318.6	4.9
Salaries and wages paid (l) .....	\$m	1969-70	208.4	4,335.5	4.8
Value added (l) .....	\$m	1969-70	420.5	8,264.9	5.1
New houses and flats commenced .....	number	1971-72	13,918	147,030	9.5
Value of all new buildings commenced .....	\$m	1971-72	297.7	3,097.4	9.6
Overseas imports .....	\$m f.o.b.	1971-72	283.3	4,008.4	7.1
Overseas exports .....	\$m f.o.b.	1971-72	946.5	4,896.4	19.3
Overseas cargo discharged .....	'000 tons (m)	1971-72	5,439	24,475	22.2
Overseas cargo shipped .....	'000 tons (m)	1971-72	54,909	109,131	50.3
Motor vehicles on register .....	'000	Sept. 1971	446.0	(n) 5,112.3	8.7
New motor vehicles registered .....	'000	1972	49.3	554.7	8.9
Road traffic accidents—Persons killed .....	number	1972	340	3,422	9.9
Television viewers' licences (o) .....	'000	Feb. 1973	224.3	2,972.4	7.5
Retail sales (including motor vehicles) .....	\$m	Sept. qr 1972	295.1	(p) 3,567.9	(q) 8.3
Instalment credit for retail sales—Balances outstanding .....	\$m	Dec. 1972	219.1	2,189.3	10.0
Savings bank deposits per head .....	\$	Dec. 1972	(b) 523.2	(b) 711.0	n.a.
Household income per head .....	\$	1971-72	2,145	2,252	n.a.
Age and invalid pensions .....	number	June 1972	69,008	971,511	7.1
War and service pensions .....	number	June 1972	52,943	631,152	8.4
Student enrolment—					
Government schools .....	number	Aug. 1971	179,889	2,196,454	8.2
Non-government schools .....	number	Aug. 1971	42,113	610,993	6.9
Universities .....	number	Apr. 1972	8,653	128,642	6.7
Colleges of Advanced Education .....	number	1971	5,675	44,232	12.8

n.a. denotes 'not applicable'.

(a) Proportion of Western Australia to Australia. (b) Preliminary. (c) In civilian employment. Excludes defence forces and employees in agriculture and private domestic service, and trainee teachers. (d) Including lucerne and lupins for seed. (e) In terms of greasy wool. Comprises shorn wool, dead wool, fellmongered wool and wool exported on skins. (f) 1 tonne = 1,000 kilograms. 1 kg = 2.2 lb approximately. (g) Dressed carcass weight. Excludes offal. (h) From local logs. Includes plywood veneers and railway sleepers. (i) See definition on page 384. (j) Mine production as reported to Department of Mines. (k) As reported to Department of Mines. (l) See notes on page 400. Excludes electricity and gas establishments. (m) Tons weight plus tons measurement. (n) Preliminary motor vehicle census figure. (o) Including combined receiving licences. (p) Excludes details of Australian Capital Territory and Northern Territory. (q) See footnote (p).

## APPENDIX

## CHAPTER III—CONSTITUTION AND GOVERNMENT

pages 104, 107

### The State Parliament

Owing to ill health, the Hon. William Francis Willesee, M.L.C. resigned his positions as Member of the Executive Council, Minister for Community Welfare and Leader of the Government in the Legislative Council on 7 February 1973. On the same date, the Hon. Ronald Thompson, M.L.C. was sworn in as Minister for Community Welfare to fill the vacancy in the Cabinet, the Hon. John Dolan, M.L.C. became the new Leader of the Government in the Legislative Council, and the Hon. Alexander Donald Taylor, B.A., M.L.A. took over the portfolio of Immigration from the Hon. Hywel David Evans, B.A., M.L.A.

At a by-election held on 7 April 1973, Mr John Sibson (Lib.) was elected to the Legislative Assembly for the electoral district of Bunbury to fill the vacancy caused by the resignation of Mr M. C. Williams (Lib.) on 28 February 1973.

The Hon. Herbert Ernst Graham, M.L.A. resigned from the State Parliament on 30 May 1973 to take up his appointment as Chairman of the Licensing Court of Western Australia as from 1 June 1973. A by-election will be held on 28 July 1973 to fill the vacancy in the Legislative Assembly for the electoral district of Balcatta.

On 30 May 1973 John Joseph Harman was sworn in as Minister for Labour, Immigration, Prices Control and Consumer Protection to fill the vacancy in the cabinet and on the same day a reallocation of portfolios in the Ministry occurred. From 30 May 1973 the Ministry was constituted as shown in the following table.

THE MINISTRY FROM 30 MAY 1973

Name of Minister	Title of office
Hon. John Trezise Tonkin, M.L.A. ....	Premier, Treasurer, and Minister for Cultural Affairs
Hon. Alexander Donald Taylor, B.A., M.L.A.	Deputy Premier and Minister for Development and Decentralisation
Hon. Thomas Daniel Evans, M.L.A. ....	Attorney-General, Minister for Recreation, and Assistant to the Treasurer
Hon. John Dolan, M.L.C. ....	Minister for Education, Transport and Railways, and Leader of the Government in the Legislative Council
Hon. Donald George May, M.L.A. ....	Minister for Mines, Electricity and Fuel
Hon. Colin John Jamieson, M.L.A. ....	Minister for Works, Water Supplies, and Traffic Safety
Hon. Hywel David Evans, B.A., M.L.A. ....	Minister for Lands, Agriculture and Forests
Hon. Ronald Davies, M.L.A. ....	Minister for Environmental Protection, Health and Town Planning
Hon. Robert Henry Claude Stubbs, M.L.C.	Minister for Local Government, and Chief Secretary
Hon. Arthur William Bickerton, M.L.A. ....	Minister for Housing, Fisheries and Fauna, and the North-West
Hon. Ronald Thompson, M.L.C. ....	Minister for Police, Community Welfare, and Tourism
Hon. John Joseph Harman, M.L.A. ....	Minister for Labour, Immigration, Prices Control, and Consumer Protection

page 106

**Legislative Council**

The electoral districts, as finally determined by the Electoral Commissioners appointed under the Act, contained within each electoral province are listed below.

**ELECTORAL PROVINCES AND ELECTORAL DISTRICTS**

Electoral province	Component electoral districts	Electoral province	Component electoral districts
<b>METROPOLITAN AREA</b>			
Metropolitan	Cottesloe Floreat Nedlands Perth Subiaco	South Metropolitan	Cockburn East Melville Fremantle Melville
North Metropolitan	Balga Karrinyup Mount Hawthorn Mount Lawley Scarborough	South-East Metropolitan	Canning Clontarf South Perth Victoria Park Welshpool
North-East Metropolitan	Ascot Maylands Morley Swan		
<b>AGRICULTURAL, MINING AND PASTORAL AREA</b>			
Central	Avon Mount Marshall Narrogin	South-East	Boulder-Dundas Kalgoorlie Merredin-Yilgarn
Lower Central	Collie Katanning Warren	South-West	Bunbury Vasse Wellington
Lower West	Dale Murray Rockingham	Upper West	Geraldton Greenough Moore
South	Albany Roe Stirling	West	Kalamunda Mundaring Toodyay
<b>NORTH-WEST-MURCHISON-EYRE AREA</b>			
Lower North	Gascoyne Murchison-Eyre	North	Kimberley Pilbara

pages 116-17

**Overseas Representation in Western Australia**

Mr S. Kushida took up his appointment as Consul-General for Japan on 18 January 1973, following the return of Mr T. Kawabata to Japan earlier that month.

Mr C. E. Dymond, C.B.E. succeeded Mr A. H. Birch, C.M.G., O.B.E. as British Deputy High Commissioner in Western Australia on 10 January 1973. With effect from 1 April 1973, the designation of the British High Commission in Perth was changed to that of British Consulate-General in Western Australia and the designation of Mr Dymond to Consul-General.

From the same date the New Zealand Trade Commissioner in Western Australia. Mr A. F. Jacobsen, A.F.C., became Consul for New Zealand.

The vacant post of Honorary Consular Agent for France has been filled by Mr J. L. Montegut. The address of the Consulate is 180 St George's Terrace, Perth 6000.

## COMMONWEALTH GOVERNMENT ADMINISTRATION

In the *Commonwealth of Australia Gazette* of 19 December 1972, a number of changes in Departments of State of the Commonwealth were notified. Approval was given by the Governor-General in Council for:

(i) the abolition of:

The Department of Education and Science  
 The Department of the Environment, Aborigines and the Arts  
 The Department of the Interior  
 The Department of National Development  
 The Department of Social Services  
 The Department of Trade and Industry

(ii) the establishment of:

The Department of Aboriginal Affairs  
 The Department of the Capital Territory  
 The Department of Education  
 The Department of the Environment and Conservation  
 The Department of the Media  
 The Department of Minerals and Energy  
 The Department of Northern Development  
 The Department of the Northern Territory  
 The Department of Overseas Trade  
 The Department of Science  
 The Department of Secondary Industry  
 The Department of Services and Property  
 The Department of Social Security  
 The Department of the Special Minister of State  
 The Department of Tourism and Recreation  
 The Department of Urban and Regional Development

(iii) the following changes in the names of Departments:

From—	To—
The Department of Labour and National Service	The Department of Labour
The Department of Shipping and Transport	The Department of Transport

## CHAPTER IV—POPULATION AND VITAL STATISTICS

## PART I—POPULATION

pages 124-8

NOTE. The tables in this section show some characteristics of the population as recorded at the periodic Census of Population and Housing. Where statistics relate to 30 June 1966 they have been amended to comprise total population, *i.e.* including Aborigines (see NOTE on page 122). In all cases, the figures shown are final.

## POPULATION IN SELECTED AGE GROUPS (a)—CENSUSES, 1947 TO 1971

Age last birthday (years)	Number in each age group (b)					Per cent of total				
	Census, 30 June—					Census, 30 June—				
	1947	1954	1961	1966	1971	1947	1954	1961	1966	1971

## MALES

Under 6 ....	31,749	45,350	50,559	53,830	64,003	12.30	13.73	13.47	12.44	12.10
6-12 ....	29,717	44,075	56,195	64,380	75,483	11.51	13.34	14.97	14.88	14.27
6-15 ....	41,261	59,028	78,270	90,409	106,849	15.99	17.87	20.85	20.90	20.20
Under 18 ....	81,352	113,847	141,371	160,461	189,965	31.52	34.46	37.65	37.09	35.91
Under 21 ....	92,636	126,605	157,345	183,031	217,724	35.89	38.32	41.91	42.31	41.15
15-44 ....	116,353	142,694	150,826	183,495	239,732	45.08	43.19	40.17	42.42	45.31
15-64 ....	168,675	208,670	228,248	268,110	334,554	65.36	63.16	60.79	61.98	63.23
65 and over ....	20,386	22,262	24,593	28,850	34,165	7.90	6.74	6.55	6.67	6.46
All ages ....	258,076	330,358	375,452	432,569	529,066	100.00	100.00	100.00	100.00	100.00

## FEMALES

Under 6 ....	30,518	43,871	47,888	51,154	60,639	12.49	14.18	13.26	12.31	12.09
6-12 ....	28,911	41,897	54,243	61,118	71,417	11.83	13.54	15.02	14.71	14.24
6-15 ....	40,023	56,210	75,024	86,218	100,622	16.38	18.17	20.77	20.75	20.07
Under 18 ....	78,667	109,142	134,811	152,855	179,532	32.19	35.27	37.33	36.79	35.81
Under 21 ....	90,538	121,393	150,128	173,882	205,636	37.04	39.23	41.57	41.85	41.01
15-44 ....	110,993	131,254	143,056	170,476	216,730	45.41	42.42	39.61	41.03	43.22
15-64 ....	157,458	189,062	213,573	250,092	307,689	64.43	61.10	59.13	60.19	61.37
65 and over ....	20,235	25,027	30,504	36,279	42,019	8.28	8.09	8.45	8.73	8.38
All ages ....	244,404	309,413	361,177	415,531	501,403	100.00	100.00	100.00	100.00	100.00

## PERSONS

Under 6 ....	62,267	89,221	98,447	104,984	124,642	12.39	13.95	13.36	12.38	12.10
6-12 ....	58,628	85,972	110,438	125,498	146,900	11.67	13.44	14.99	14.80	14.26
6-15 ....	81,284	115,238	153,294	176,627	207,471	16.18	18.01	20.81	20.83	20.13
Under 18 ....	160,019	222,989	276,182	313,316	369,497	31.85	34.85	37.49	36.94	35.86
Under 21 ....	183,174	247,998	307,473	356,913	423,360	36.45	38.76	41.74	42.08	41.08
15-44 ....	227,346	273,948	293,882	353,971	456,462	45.24	42.82	39.90	41.74	44.30
15-64 ....	326,133	397,732	441,821	518,202	642,243	64.90	62.17	59.98	61.10	62.33
65 and over ....	40,621	47,289	55,097	65,129	76,184	8.08	7.39	7.48	7.68	7.39
All ages ....	502,480	639,771	736,629	848,100	1,030,469	100.00	100.00	100.00	100.00	100.00

(a) Figures for 30 June 1961 and earlier exclude full-blood Aborigines (see NOTE on page 122); those for 1966 and 1971 refer to total population (*i.e.* including Aborigines). (b) Recorded ages adjusted by the distribution of ages 'not stated'.

## AGE DISTRIBUTION OF THE POPULATION (a)—CENSUSES, 1947 TO 1971

Age last birthday (years)	Population in each age group (b)					Percentage distribution				
	Census, 30 June—					Census, 30 June—				
	1947	1954	1961	1966	1971	1947	1954	1961	1966	1971
0-4	52,452	74,978	81,916	86,481	104,994	10.44	11.72	11.12	10.20	10.19
5-9	44,592	67,079	80,754	90,835	103,309	8.87	10.48	10.96	10.71	10.03
10-14	38,682	52,693	77,041	87,453	103,739	7.70	8.24	10.46	10.31	10.07
15-19	39,939	45,251	57,738	80,159	93,426	7.95	7.07	7.84	9.45	9.07
20-24	38,434	43,602	47,877	60,308	93,464	7.65	6.82	6.50	7.11	9.07
25-29	36,126	49,479	44,321	54,739	78,298	7.19	7.73	6.02	6.45	7.60
30-34	38,585	48,520	49,647	50,145	67,914	7.68	7.58	6.74	5.91	6.59
35-39	38,178	42,690	50,634	54,782	61,097	7.60	6.67	6.87	6.46	5.93
40-44	36,084	44,406	43,665	53,838	62,263	7.18	6.94	5.93	6.35	6.04
45-49	32,471	40,636	45,275	45,557	57,756	6.46	6.35	6.15	5.37	5.60
50-54	25,064	35,647	40,376	42,256	46,415	4.99	5.57	5.48	5.34	4.50
55-59	22,606	25,234	34,833	39,827	44,141	4.50	3.94	4.73	4.70	4.28
60-64	18,646	22,267	27,455	33,591	37,469	3.71	3.48	3.73	3.96	3.64
65-69	15,809	17,502	20,240	25,116	30,285	3.15	2.74	2.75	2.96	2.94
70-74	11,934	13,340	15,742	17,497	21,022	2.38	2.09	2.14	2.06	2.04
75 and over	12,878	16,447	19,115	22,516	24,877	2.56	2.57	2.59	2.65	2.41
Total	502,480	639,771	736,629	848,100	1,030,469	100.00	100.00	100.00	100.00	100.00
Under 21	183,174	247,998	307,473	356,913	423,360	36.45	38.76	41.74	42.08	41.08
21-64	278,685	344,484	374,059	426,058	530,925	55.46	53.84	50.78	50.24	51.52
65 and over	40,621	47,289	55,097	65,129	76,184	8.08	7.39	7.48	7.68	7.39
Total	502,480	639,771	736,629	848,100	1,030,469	100.00	100.00	100.00	100.00	100.00

(a) Figures for 30 June 1961 and earlier exclude full-blood Aborigines (see NOTE on page 122); those for 1966 and 1971 refer to total population (i.e. including Aborigines). (b) Recorded ages adjusted by the distribution of ages 'not stated'.

## AGE DISTRIBUTION OF THE POPULATION—CENSUSES, 1966 (a) AND 1971

Age last birthday (years) (b)	Census, 30 June 1966 (a)		Census, 30 June 1971					
	Persons	Per cent of total	Males	Females	Persons			
					Number	Per cent of total	Increase since 1966	
							Numerical	Per cent
0-4	86,481	10.20	53,932	51,062	104,994	10.19	18,513	21.41
5-9	90,835	10.71	53,044	50,265	103,309	10.03	12,474	13.73
10-14	87,453	10.31	53,371	50,368	103,739	10.07	16,286	18.62
15-19	80,159	9.45	48,105	45,321	93,426	9.07	13,267	16.55
20-24	60,308	7.11	49,036	44,428	93,464	9.07	33,156	54.98
25-29	54,739	6.45	42,030	36,268	78,298	7.60	23,559	43.04
30-34	50,145	5.91	35,602	32,312	67,914	6.59	17,769	35.44
35-39	54,782	6.46	32,015	29,082	61,097	5.93	6,315	11.53
40-44	53,838	6.35	32,944	29,319	62,263	6.04	8,425	15.65
45-49	45,557	5.37	30,367	27,389	57,756	5.60	12,199	26.78
50-54	45,256	5.34	23,621	22,794	46,415	4.50	1,159	2.56
55-59	39,827	4.70	22,168	21,973	44,141	4.28	4,314	10.83
60-64	33,591	3.96	18,666	18,803	37,469	3.64	3,878	11.54
65-69	25,116	2.96	15,120	15,165	30,285	2.94	5,169	20.58
70-74	17,497	2.06	9,667	11,355	21,022	2.04	3,525	20.15
75-79	12,042	1.42	5,174	7,728	12,902	1.25	860	7.14
80-84	6,510	0.77	2,792	4,805	7,597	0.74	1,087	16.70
85-89	2,933	0.35	1,089	2,088	3,177	0.31	244	8.32
90-94	859	0.10	279	701	980	0.10	121	14.09
95-99	158	0.02	41	165	206	0.02	48	30.38
100 and over	14	0.00	3	12	15	0.00	1	7.14
Total	848,100	100.00	529,066	501,403	1,030,469	100.00	182,369	21.50

(a) The figures shown for 1966 have been amended to comprise total population, i.e. including Aborigines (see NOTE on page 122). (b) Recorded ages adjusted by the distribution of ages 'not stated'.

## BIRTHPLACE AND NATIONALITY OF THE POPULATION—CENSUSES, 1966 (a) AND 1971

Classification	Census, 30 June 1966 (a)		Census, 30 June 1971					
	Persons	Per cent of total	Males	Females	Persons			
					Number	Per cent of total	Increase or decrease (b) since 1966	
							Numerical	Per cent

## BIRTHPLACE

Australia—								
Western Australia .....	564,204	66.53	310,128	307,974	618,102	59.98	53,898	9.55
Elsewhere in Australia .....	85,105	10.03	65,766	63,328	129,094	12.53	43,989	51.69
Total .....	649,309	76.56	375,894	371,302	747,196	72.51	97,887	15.08
New Zealand .....	2,668	0.31	4,315	3,163	7,478	0.73	4,810	180.28
Europe—								
United Kingdom and Re-								
public of Ireland .....	104,120	12.28	82,193	74,824	157,017	15.24	52,897	50.80
Germany .....	5,935	0.70	3,582	3,494	7,076	0.69	1,141	19.22
Greece .....	5,443	0.64	2,760	2,280	5,040	0.49	—403	—7.40
Italy .....	28,141	3.32	17,139	13,402	30,541	2.96	2,400	8.53
Netherlands .....	10,369	1.22	6,245	5,031	11,276	1.09	907	8.75
Poland .....	4,727	0.56	2,737	1,958	4,695	0.46	—32	—0.68
Yugoslavia .....	7,501	0.88	6,240	3,919	10,159	0.99	2,658	35.44
Other .....	10,892	1.28	8,539	5,929	14,468	1.40	3,576	32.83
Total .....	177,128	20.89	129,435	110,837	240,272	23.32	63,144	35.65
India .....	3,814	0.45	3,958	3,946	7,904	0.77	4,090	107.24
United States of America .....	2,063	0.24	2,394	1,594	3,988	0.39	1,925	93.31
Other birthplaces .....	13,118	1.55	13,070	10,561	23,631	2.29	10,513	80.14
GRAND TOTAL .....	848,100	100.00	529,066	501,403	1,030,469	100.00	182,369	21.50

## NATIONALITY

British (c)—								
Born in Australia .....	649,309	76.56	375,894	371,302	747,196	72.51	97,887	15.08
Born outside Australia .....	167,501	19.75	122,419	106,819	229,238	22.25	61,737	36.86
Total, British .....	816,810	96.31	498,313	478,121	976,434	94.76	159,624	19.54
Foreign—								
Dutch .....	3,985	0.47	2,103	1,801	3,904	0.38	—81	—2.03
German .....	1,526	0.18	1,089	750	1,839	0.18	313	20.51
Greek .....	2,565	0.30	1,146	989	2,135	0.21	—430	—16.76
Italian .....	12,822	1.51	7,661	6,650	14,311	1.39	1,489	11.61
Polish .....	960	0.11	385	283	668	0.06	—292	—30.42
U.S. American .....	1,944	0.23	2,189	1,489	3,678	0.36	1,734	89.20
Yugoslav .....	3,037	0.36	2,691	1,655	4,346	0.42	1,309	43.10
Stateless .....	627	0.07	7,153	5,994	13,147	1.28	12,520	1,996.81
Other .....	3,824	0.45	6,336	3,671	10,007	0.97	6,183	161.69
Total, Foreign .....	31,290	3.69	30,753	23,282	54,035	5.24	22,745	72.69
GRAND TOTAL .....	848,100	100.00	529,066	501,403	1,030,469	100.00	182,369	21.50

(a) The figures shown for 1966 have been amended to comprise total population, i.e. including Aborigines (see NOTE on page 122).

(b) Minus sign (—) denotes decrease.

(c) The category *British*, as used in this table, comprises all persons who, by virtue of Australian legislation relating to nationality and citizenship, were deemed to be British subjects. It includes Australian citizens and citizens of other countries as specified in the legislation. Persons of Irish nationality are also included.

## RELIGION AND MARITAL STATUS OF THE POPULATION—CENSUSES, 1966 (a) AND 1971

Classification	Census, 30 June 1966 (a)		Census, 30 June 1971					
	Persons	Per cent of total	Males	Females	Persons			
					Number	Per cent of total	Increase or decrease (b) since 1966	
							Numerical	Per cent
RELIGION								
Christian—								
Baptist .....	10,921	1.29	6,348	6,997	13,345	1.30	2,424	22.20
Brethren .....	845	0.10	605	659	1,264	0.12	419	45.59
Catholic (c) .....	100,124	11.81	46,561	46,637	93,198	9.04	—6,926	—6.92
Catholic, Roman (c) .....	115,857	13.66	89,272	85,520	174,792	16.96	58,935	50.87
Church of England .....	317,212	37.40	180,677	182,082	362,759	35.20	45,547	14.36
Churches of Christ .....	12,070	1.42	6,177	7,259	13,436	1.30	1,366	11.32
Congregational .....	8,375	0.99	3,857	4,401	8,258	0.80	—117	—1.40
Jehovah's Witness .....	(d)	(d)	2,177	2,657	4,834	0.47	(e)	(e)
Lutheran .....	5,155	0.61	3,597	3,401	6,998	0.68	1,843	35.75
Methodist .....	80,965	9.55	41,108	44,175	85,283	8.28	4,318	5.33
Orthodox .....	11,836	1.40	7,361	6,130	13,491	1.31	1,655	13.98
Presbyterian .....	44,310	5.22	23,862	24,505	48,367	4.69	4,057	9.16
Salvation Army .....	4,924	0.58	2,896	3,174	6,070	0.59	1,146	23.27
Seventh-day Adventist .....	4,430	0.52	2,135	2,684	4,819	0.47	389	8.78
Protestant (undefined) .....	6,748	0.80	8,056	7,795	15,851	1.54	9,103	134.90
Other (including Christian undefined) .....	13,065	1.54	8,317	8,796	17,113	1.66	(e)	(e)
Total, Christian .....	736,837	86.88	433,006	436,872	869,878	84.42	133,041	18.06
Non-Christian—								
Hebrew .....	2,996	0.35	1,569	1,533	3,102	0.30	106	3.54
Other .....	1,261	0.15	1,786	976	2,762	0.27	1,501	119.03
Total, Non-Christian .....	4,257	0.50	3,355	2,509	5,864	0.57	1,607	37.75
Indefinite .....	2,849	0.34	1,777	1,225	3,002	0.29	153	5.37
No religion .....	8,203	0.97	54,887	35,474	90,361	8.77	82,158	1001.56
Total replies .....	752,146	88.69	493,025	476,080	969,105	94.05	216,959	28.85
No reply .....	95,954	11.31	36,041	25,323	61,364	5.95	—34,590	—36.05
GRAND TOTAL .....	848,100	100.00	529,066	501,403	1,030,469	100.00	182,369	21.50

## MARITAL STATUS

Never married—								
Under 15 years of age .....	264,499	31.19	160,347	151,695	312,042	30.28	47,543	17.97
15 years of age and over .....	154,007	18.16	112,323	70,648	182,971	17.76	28,964	18.81
Total .....	418,506	49.35	272,670	222,343	495,013	48.04	76,507	18.28
Married .....	372,105	43.88	234,605	231,237	465,842	45.21	93,737	25.19
Married but permanently separated (f) .....	11,649	1.37	7,378	7,379	14,757	1.43	3,108	26.68
Divorced .....	7,523	0.89	5,732	5,313	11,045	1.07	3,522	46.82
Widowed .....	38,317	4.52	8,681	35,131	43,812	4.25	5,495	14.34
GRAND TOTAL .....	848,100	100.00	529,066	501,403	1,030,469	100.00	182,369	21.50

(a) The figures shown for 1966 have been amended to comprise total population, i.e. including Aborigines (see NOTE on page 122).  
 (b) Minus sign (—) denotes decrease. (c) As stated in individual census schedules. (d) Not available; included in *Other (including Christian undefined)*. (e) Not applicable; see footnote (d). (f) Legally or otherwise.

**POPULATION OF URBAN CENTRES AND BOUNDED LOCALITIES  
CENSUSES, 1966 AND 1971**

NOTE. Population clusters where 1,000 or more persons were enumerated at the 1971 Census are designated 'urban centres' and are marked (U) in the table below. The other areas shown are described as 'bounded localities'. In delimiting urban Perth special criteria were applied (see page 130). For areas other than urban Perth, boundaries were determined by examination of the most recent available aerial photographs in order to identify as closely as possible the periphery of the built-up area. Those centres which were found to have a population of more than 200 persons at the 1971 Census are included in the table.

Urban centres and bounded localities are listed alphabetically below. In the next table, they are arranged in descending order of population size as disclosed at the 1971 Census.

Urban centre or bounded locality	Population (a)				Intercensal increase or decrease (b)	
	Census, 30 June—					
	1966	1971			Number	Per cent
		Persons	Males	Females		
Albany (U) ....	11,440	6,412	6,689	13,101	1,661	14.52
Augusta .....	n.a.	166	184	350	n.a.	n.a.
Australind .....	n.a.	202	216	418	n.a.	n.a.
Beverley .....	883	383	402	785	—98	—11.10
Boddington .....	n.a.	182	169	351	n.a.	n.a.
Boyanup .....	n.a.	154	149	303	n.a.	n.a.
Boyup Brook .....	711	353	335	688	—23	—3.23
Bridgetown (U) .....	1,569	773	763	1,536	—33	—2.10
Brookton .....	660	356	303	659	—1	—0.15
Broome (U) .....	1,874	1,159	890	2,049	175	9.34
Bruce Rock .....	775	373	356	729	—46	—5.94
Brunswick Junction....	878	486	416	902	24	2.73
Bunbury (U)....	15,467	8,900	8,879	17,779	2,312	14.95
Busselton (U) .....	4,278	2,416	2,567	4,983	705	16.48
Byford .....	n.a.	317	310	627	n.a.	n.a.
Capel .....	n.a.	332	325	657	n.a.	n.a.
Carnamah .....	n.a.	252	214	466	n.a.	n.a.
Carnarvon (U) .....	3,086	2,140	2,102	4,242	1,156	37.46
Chidlow .....	n.a.	114	90	204	n.a.	n.a.
Collie (U) .....	7,669	3,321	3,413	6,734	—935	—12.19
Coolgardie .....	473	317	307	624	151	31.92
Coorow .....	n.a.	113	102	215	n.a.	n.a.
Corrigin .....	797	385	399	784	—13	—1.63
Cranbrook .....	n.a.	204	188	392	n.a.	n.a.
Cue .....	n.a.	142	145	287	n.a.	n.a.
Cunderdin .....	800	449	424	873	73	9.13
Dalwallinu .....	n.a.	371	353	724	n.a.	n.a.
Dampier (U) .....	1,080	2,620	965	3,585	2,505	231.94
Darkan .....	n.a.	126	130	256	n.a.	n.a.
Deanmill .....	n.a.	182	142	324	n.a.	n.a.
Denmark .....	800	325	333	658	—142	—17.75
Derby (U) .....	1,843	1,278	1,260	2,538	695	37.71
Dongara .....	n.a.	183	148	331	n.a.	n.a.
Donnybrook....	981	494	504	998	17	1.73
Dowerin .....	376	176	175	351	—25	—6.65
Dumbleyung .....	n.a.	190	186	376	n.a.	n.a.
Dwellingup .....	n.a.	267	218	485	n.a.	n.a.
Eaton....	n.a.	377	408	785	n.a.	n.a.
Esperance (U) .....	2,698	2 510	2,364	4,874	2,176	80.65
Exmouth (U) .....	881	1,572	1,098	2,670	1,789	203.06
Geraldton (U) .....	12,196	7,909	7,548	15,457	3,261	26.74
Gingin .....	n.a.	175	169	344	n.a.	n.a.
Gnowangerup (U) .....	1,014	506	503	1,009	—5	—0.49
Goldsworthy (U) .....	n.a.	658	362	1,020	n.a.	n.a.
Goomalling .....	670	387	370	757	87	12.99
Greenbushes .....	n.a.	132	143	275	n.a.	n.a.
Halls Creek .....	n.a.	319	359	678	n.a.	n.a.
Harvey (U) .....	2,066	1,175	1,162	2,337	271	13.12
Jarrohdale .....	n.a.	206	185	391	n.a.	n.a.
Kalgoorlie-Boulder (U) .....	19,980	10,992	9,873	20,865	885	4.43
Kambalda (U) .....	n.a.	2,406	1,818	4,224	n.a.	n.a.
Karratha (U) .....	n.a.	1,036	802	1,838	n.a.	n.a.
Katanning (U) .....	3,596	1,744	1,850	3,594	—2	—0.06
Kellerberrin (U) .....	1,370	658	648	1,306	—64	—4.67
Kojonup .....	980	511	472	983	3	0.31
Kondinin .....	n.a.	170	141	311	n.a.	n.a.
Koolyanobbing .....	n.a.	167	139	306	n.a.	n.a.
Koorda .....	n.a.	218	193	411	n.a.	n.a.
Kulin .....	n.a.	161	148	309	n.a.	n.a.
Kununurra (U) .....	975	704	536	1,240	265	27.18
Kwinana New Town (U) (c) .....	4,144	5,078	5,030	10,108	5,964	143.92

**POPULATION OF URBAN CENTRES AND BOUNDED LOCALITIES  
CENSUSES, 1966 AND 1971—continued**

Urban centre or bounded locality	Population (a)				Intercensal increase or decrease (b)	
	Census, 30 June—					
	1966	1971			Number	Per cent
	Persons	Males	Females	Persons		
Lake Grace ....	545	304	253	557	12	2.20
Lake Macleod .....	n.a.	232	67	299	n.a.	n.a.
Lancelin .....	n.a.	111	99	210	n.a.	n.a.
Leonora .....	338	300	294	594	256	75.74
Mandurah (U) .....	2,730	2,503	2,559	5,062	2,332	85.42
Manjimup (U) .....	3,186	1,710	1,816	3,526	340	10.67
Marble Bar .....	n.a.	211	183	394	n.a.	n.a.
Margaret River .....	632	332	333	665	33	5.22
Meekatharra.....	577	512	415	927	350	60.66
Merredin (U) .....	3,601	1,872	1,681	3,553	—48	—1.33
Mingenew .....	n.a.	275	229	504	n.a.	n.a.
Moora (U) .....	1,263	735	674	1,409	146	11.56
Morawa .....	881	494	393	887	6	0.68
Mount Barker (U) .....	1,595	817	778	1,595	....	....
Mount Magnet .....	683	366	270	636	—47	—6.88
Mukinbudin .....	n.a.	160	161	321	n.a.	n.a.
Mullaloo .....	n.a.	125	111	236	n.a.	n.a.
Mullewa .....	833	469	409	878	45	5.40
Mundaring .....	n.a.	295	284	579	n.a.	n.a.
Mundijong .....	n.a.	122	114	236	n.a.	n.a.
Nannup .....	591	285	228	513	—78	—13.20
Narembeen .....	n.a.	228	214	442	n.a.	n.a.
Narrogin (U) .....	4,878	2,398	2,451	4,849	—29	—0.59
Newman (U) .....	n.a.	2,922	984	3,906	n.a.	n.a.
Norseman (U) .....	1,911	1,011	778	1,789	—122	—6.38
Northam (U) .....	7,413	3,634	3,483	7,117	—296	—3.99
Northampton .....	701	384	379	763	62	8.84
Northcliffe .....	n.a.	121	103	224	n.a.	n.a.
Nyamup .....	n.a.	125	99	224	n.a.	n.a.
Onslow .....	n.a.	181	168	349	n.a.	n.a.
Paraburdoo (U) .....	n.a.	2,519	458	2,977	n.a.	n.a.
Pemberton .....	931	435	380	815	—116	—12.46
Perenjori .....	n.a.	163	127	290	n.a.	n.a.
Perth (U) .....	500,246	317,593	324,207	641,800	141,554	28.30
Pingelly .....	969	464	454	918	—51	—5.26
Pinjarra (U) .....	889	561	630	1,191	302	33.97
Port Hedland (U) .....	1,920	4,330	2,899	7,229	5,309	276.51
Quairading ....	687	442	414	856	169	24.60
Ravensthorpe .....	n.a.	116	109	225	n.a.	n.a.
Rockingham (U) .....	(d) 5,039	6,197	5,832	12,029	6,990	138.72
Roebourne (U) .....	n.a.	808	707	1,515	n.a.	n.a.
Roleystone (U) .....	n.a.	570	579	1,149	n.a.	n.a.
Shark Bay .....	n.a.	187	136	323	n.a.	n.a.
Southern Cross .....	853	445	450	895	42	4.92
Tambellup ....	n.a.	218	188	406	n.a.	n.a.
Tammin .....	n.a.	184	176	360	n.a.	n.a.
Three Springs .....	n.a.	286	268	554	n.a.	n.a.
Tom Price (U) .....	549	2,061	1,365	3,426	2,877	524.04
Toodyay .....	710	295	286	581	—129	—18.17
Trayning .....	n.a.	108	101	209	n.a.	n.a.
Wagin (U) .....	1,753	824	740	1,564	—189	—10.78
Walpole .....	n.a.	120	102	222	n.a.	n.a.
Wanneroo (U) .....	n.a.	768	758	1,526	n.a.	n.a.
Waroona (U) .....	1,013	579	583	1,162	149	14.71
Wickepin .....	n.a.	161	133	294	n.a.	n.a.
Williams .....	n.a.	229	216	445	n.a.	n.a.
Wittenoom Gorge .....	878	243	179	422	—456	—51.94
Wongan Hills .....	763	453	428	881	118	15.47
Wundowie (U) .....	1,040	554	488	1,042	2	0.19
Wyalkatchem .....	625	291	282	573	—52	—8.32
Wyndham (U) .....	1,421	849	666	1,515	94	6.62
Yarloop .....	476	261	258	519	43	9.03
York (U) .....	1,432	609	568	1,177	—255	—17.81

n.a. denotes 'not available' or 'not applicable'.

(a) Figures relate to total population, i.e. including Aborigines. (b) Minus sign (—) denotes decrease. (c) Described as Medina-Calista at the 1966 Census. (d) Comprises population of urban centres of Rockingham-Safety Bay and Kwinana Industrial as delimited at the 1966 Census; incorporated into urban Rockingham at the 1971 Census.

POPULATION OF URBAN CENTRES AND BOUNDED LOCALITIES  
CENSUSES, 1966 AND 1971

See NOTE at head of previous table.

Urban centre or bounded locality	Population (a)				Intercensal increase or decrease (b)	
	Census, 30 June—				Number	Per cent
	1966	1971				
	Persons	Males	Females	Persons		
Perth (U) ....	500,246	317,593	324,207	641,800	141,554	28.30
Kalgoorlie-Boulder (U) ....	19,980	10,992	9,873	20,865	885	4.43
Bunbury (U) ....	15,467	8,900	8,879	17,779	2,312	14.95
Geraldton (U) ....	12,196	7,909	7,548	15,457	3,261	26.74
Albany (U) ....	11,440	6,412	6,689	13,101	1,661	14.52
Rockingham (U) ....	(c) 5,039	6,197	5,832	12,029	6,990	138.72
Kwinana New Town (U) (d) ....	4,144	5,078	5,030	10,108	5,964	143.92
Port Hedland (U) ....	1,920	4,330	2,899	7,229	5,309	276.51
Northam (U) ....	7,413	3,634	3,483	7,117	—296	—3.99
Collie (U) ....	7,669	3,321	3,413	6,734	—935	—12.19
Mandurah (U) ....	2,730	2,503	2,559	5,062	2,332	85.42
Busselton (U) ....	4,278	2,416	2,567	4,983	705	16.48
Esperance (U) ....	2,698	2,510	2,364	4,874	2,176	80.65
Narrogin (U) ....	4,878	2,398	2,451	4,849	—29	—0.59
Carnarvon (U) ....	3,086	2,140	2,102	4,242	1,156	37.46
Kambalda (U) ....	n.a.	2,406	1,818	4,224	n.a.	n.a.
Newman (U) ....	n.a.	2,922	984	3,906	n.a.	n.a.
Katanning (U) ....	3,596	1,744	1,850	3,594	—2	—0.06
Dampier (U) ....	1,080	2,620	965	3,585	2,505	231.94
Merredin (U) ....	3,601	1,872	1,681	3,553	—48	—1.33
Manjimup (U) ....	3,186	1,710	1,816	3,526	340	10.67
Tom Price (U) ....	549	2,061	1,365	3,426	2,877	524.04
Paraburdoo (U) ....	n.a.	2,519	458	2,977	n.a.	n.a.
Exmouth (U) ....	881	1,572	1,098	2,670	1,789	203.06
Derby (U) ....	1,843	1,278	1,260	2,538	695	37.71
Harvey (U) ....	2,066	1,175	1,162	2,337	271	13.12
Broome (U) ....	1,874	1,159	890	2,049	175	9.34
Karratha (U) ....	n.a.	1,036	802	1,838	n.a.	n.a.
Norseman (U) ....	1,911	1,011	778	1,789	—122	—6.38
Mount Barker (U) ....	1,595	817	778	1,595	—	—
Wagin (U) ....	1,753	824	740	1,564	—189	—10.78
Bridgetown (U) ....	1,569	773	763	1,536	—33	—2.10
Wanneroo (U) ....	n.a.	768	758	1,526	n.a.	n.a.
Wyndham (U) ....	1,421	849	666	1,515	94	6.62
Roebourne (U) ....	n.a.	808	707	1,515	n.a.	n.a.
Moorla (U) ....	1,263	735	674	1,409	146	11.56
Kellerberrin (U) ....	1,370	658	648	1,306	—64	—4.67
Kununurra (U) ....	975	704	536	1,240	265	27.18
Pinjarra (U) ....	889	561	630	1,191	302	33.97
York (U) ....	1,432	609	568	1,177	—255	—17.81
Waroona (U) ....	1,013	579	583	1,162	149	14.71
Roleystone (U) ....	n.a.	570	579	1,149	n.a.	n.a.
Wundowie (U) ....	1,040	554	488	1,042	2	0.19
Goldsworthy (U) ....	n.a.	658	362	1,020	n.a.	n.a.
Gnowangerup (U) ....	1,014	506	503	1,009	—5	—0.49
Donnybrook ....	981	494	504	998	17	1.73
Kojonup ....	980	511	472	983	3	0.31
Meekatharra ....	577	512	415	927	350	60.66
Pingelly ....	969	464	454	918	—51	—5.26
Brunswick Junction ....	878	486	416	902	24	2.73
Southern Cross ....	853	445	450	895	42	4.92
Morawa ....	881	494	393	887	6	0.68
Wongan Hills ....	763	453	428	881	118	15.47
Mullewa ....	833	469	409	878	45	5.40
Cunderdin ....	800	449	424	873	73	9.13
Quairading ....	687	442	414	856	169	24.60
Pemberton ....	931	435	380	815	—116	—12.46
Beverley ....	883	383	402	785	—98	—11.10
Eaton ....	n.a.	377	408	785	n.a.	n.a.
Corrigin ....	797	385	399	784	—13	—1.63
Northampton ....	701	384	379	763	62	8.84
Goomalling ....	670	387	370	757	87	12.99
Bruce Rock ....	775	373	356	729	—46	—5.94
Dalwallinu ....	n.a.	371	353	724	n.a.	n.a.

POPULATION OF URBAN CENTRES AND BOUNDED LOCALITIES  
CENSUSES, 1966 AND 1971—*continued*

Urban centre or bounded locality	Population (a)				Intercensal increase or decrease (b)	
	Census, 30 June—					
	1966	1971			Number	Per cent
	Persons	Males	Females	Persons		
Boyup Brook	711	353	335	688	—23	—3·23
Halls Creek	n.a.	319	359	678	n.a.	n.a.
Margaret River	632	332	333	665	33	5·22
Brookton	660	356	303	659	—1	—0·15
Denmark	800	325	333	658	—142	—17·75
Capel	n.a.	332	325	657	n.a.	n.a.
Mount Magnet	683	366	270	636	—47	—6·88
Byford	n.a.	317	310	627	n.a.	n.a.
Coolgardie	473	317	307	624	151	31·92
Leonora	338	300	294	594	256	75·74
Toodyay	710	295	286	581	—129	—18·17
Mundaring	n.a.	295	284	579	n.a.	n.a.
Wyalkatchem	625	291	282	573	—52	—8·32
Lake Grace	545	304	253	557	12	2·20
Three Springs	n.a.	286	268	554	n.a.	n.a.
Yarloop	476	261	258	519	43	9·03
Nannup	591	285	228	513	—78	—13·20
Mingenew	n.a.	275	229	504	n.a.	n.a.
Dwellingup	n.a.	267	218	485	n.a.	n.a.
Carnamah	n.a.	252	214	466	n.a.	n.a.
Williams	n.a.	229	216	445	n.a.	n.a.
Narembeen	n.a.	228	214	442	n.a.	n.a.
Wittenoom Gorge	878	243	179	422	—456	—51·94
Australind	n.a.	202	216	418	n.a.	n.a.
Koorda	n.a.	218	193	411	n.a.	n.a.
Tambellup	n.a.	218	188	406	n.a.	n.a.
Marble Bar	n.a.	211	183	394	n.a.	n.a.
Cranbrook	n.a.	204	188	392	n.a.	n.a.
Jarrahdale	n.a.	206	185	391	n.a.	n.a.
Dumbleyung	n.a.	190	186	376	n.a.	n.a.
Tammin	n.a.	184	176	360	n.a.	n.a.
Boddington	n.a.	182	169	351	n.a.	n.a.
Dowerin	376	176	175	351	—25	—6·65
Augusta	n.a.	166	184	350	n.a.	n.a.
Onslow	n.a.	181	168	349	n.a.	n.a.
Gingin	n.a.	175	169	344	n.a.	n.a.
Dongara	n.a.	183	148	331	n.a.	n.a.
Deanmill	n.a.	182	142	324	n.a.	n.a.
Shark Bay	n.a.	187	136	323	n.a.	n.a.
Mukinbudin	n.a.	160	161	321	n.a.	n.a.
Kondinin	n.a.	170	141	311	n.a.	n.a.
Kulin	n.a.	161	148	309	n.a.	n.a.
Koolyanobbing	n.a.	167	139	306	n.a.	n.a.
Boyanup	n.a.	154	149	303	n.a.	n.a.
Lake MacLeod	n.a.	232	67	299	n.a.	n.a.
Wickepin	n.a.	161	133	294	n.a.	n.a.
Perenjori	n.a.	163	127	290	n.a.	n.a.
Cue	n.a.	142	145	287	n.a.	n.a.
Greenbushes	n.a.	132	143	275	n.a.	n.a.
Darkan	n.a.	126	130	256	n.a.	n.a.
Mullaloo	n.a.	125	111	236	n.a.	n.a.
Mundijong	n.a.	122	114	236	n.a.	n.a.
Ravensthorpe	n.a.	116	109	225	n.a.	n.a.
Northcliffe	n.a.	121	103	224	n.a.	n.a.
Nyamup	n.a.	125	99	224	n.a.	n.a.
Walpole	n.a.	120	102	222	n.a.	n.a.
Coorow	n.a.	113	102	215	n.a.	n.a.
Lancelin	n.a.	111	99	210	n.a.	n.a.
Trayning	n.a.	108	101	209	n.a.	n.a.
Chidlow	n.a.	114	90	204	n.a.	n.a.

n.a. denotes 'not available' or 'not applicable'.

(a) Figures relate to total population, i.e. including Aborigines. (b) Minus sign (—) denotes decrease. (c) Comprises population of urban centres of Rockingham-Safety Bay and Kwinana Industrial as delimited at the 1966 Census; incorporated into urban Rockingham at the 1971 Census. (d) Described as Medina-Calista at the 1966 Census.

**CHAPTER V—SOCIAL CONDITIONS**  
**PART 4—HOUSING AND BUILDING**  
**HOUSING AND THE CENSUS**

NOTE. The statistics of dwellings at the Census of 30 June 1966 as shown in Chapter V, Part 4—*Housing and Building* exclude dwellings occupied solely by full-blood Aborigines (see letterpress *Aborigines* on page 123). Figures for 1966, where shown in the tables below, have been amended to include such dwellings. Statistics derived from the Census of 30 June 1971 also refer to the total numbers of dwellings.

pages 211-18

**Class of Dwelling**

**DWELLINGS (a) ACCORDING TO CLASS**  
**CENSUS, 30 JUNE 1971**

Class of dwelling	Urban (b)		Rural (b)	Total
	Major	Other		
<b>Private dwellings—</b>				
Separate house .....	152,452	47,964	51,729	252,145
Semi-detached house .....	10,634	2,233	886	13,753
Attached house .....	1,101	442	783	2,326
Terrace or row house .....	1,695	435	49	2,179
Villa unit or town house .....	1,337	547	415	2,299
Self-contained flat or home unit .....	26,221	3,276	454	29,951
Non self-contained flat .....	2,070	345	265	2,680
Other private dwellings .....	496	2,738	4,066	7,300
<b>Total, Private dwellings .....</b>	<b>196,006</b>	<b>57,980</b>	<b>58,647</b>	<b>312,633</b>
<b>Non-private dwellings—</b>				
Hotel, motel .....	185	189	198	572
Staff quarters .....	32	154	444	630
Boarding house .....	394	150	74	618
Boarding school .....	23	9	12	44
Residential college .....	18	9	6	33
Hospital other than mental hospital .....	68	37	43	148
Nursing home .....	68	10	6	84
Home for the aged .....	24	4	2	30
Aboriginal mission settlement .....	4	10	54	68
Convent, monastery, etc. ....	49	26	17	92
Prison .....	4	22	17	43
Other non-private dwellings .....	58	18	48	124
<b>Total, Non-private dwellings .....</b>	<b>927</b>	<b>638</b>	<b>921</b>	<b>2,486</b>
<b>Total dwellings .....</b>	<b>196,933</b>	<b>58,618</b>	<b>59,568</b>	<b>315,119</b>

(a) Comprises occupied and unoccupied dwellings. See also NOTE above. (b) See page 130.

**Number of Rooms**

**OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS (a)**  
**NUMBER OF ROOMS: CENSUSES, 1966 AND 1971**

Number of rooms (b) per house or flat	Private house		Self-contained flat	
	Census, 30 June—		Census, 30 June—	
	1966	1971	1966	1971
1 .....	194	654	282	1,395
2 .....	1,608	2,606	2,869	7,152
3 .....	6,000	11,289	4,835	9,128
4 .....	34,821	44,219	4,058	5,710
5 .....	86,146	113,623	1,393	1,500
6 .....	45,104	50,667	404	303
7 .....	17,723	17,572	141	96
8 and over .....	9,567	9,064	99	189
<b>Total houses, flats .....</b>	<b>201,163</b>	<b>249,694</b>	<b>14,081</b>	<b>25,473</b>
<b>Average number of rooms .....</b>	<b>5.3</b>	<b>n.a.</b>	<b>3.4</b>	<b>n.a.</b>

n.a. denotes 'not available'.

(a) See NOTE above. (b) Includes kitchen and permanently enclosed sleep-out, but does not include bathroom, toilet, pantry, laundry, storeroom, hall, or room used only for business purposes.

## Number of Bedrooms

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS  
NUMBER OF BEDROOMS: CENSUS 30 JUNE 1971

Number of bedrooms (a)	Private house				Self-contained flat			
	Urban (b)		Rural (b)	Total	Urban (b)		Rural (b)	Total
	Major	Other			Major	Other		
0 (c) ....	537	163	264	964	1,725	64	13	1,802
1 ....	4,539	1,448	1,621	7,608	9,656	706	121	10,483
2 ....	36,841	9,844	9,215	55,900	9,657	1,267	112	11,036
3 ....	95,258	27,520	21,523	144,301	1,202	260	59	1,521
4 ....	19,790	5,726	8,125	33,641	99	24	18	141
5 and over	3,074	766	1,834	5,674	62	45	20	127
Not stated	827	381	398	1,606	301	55	7	363
Total houses, flats	160,866	45,848	42,980	249,694	22,702	2,421	350	25,473

(a) Includes permanently enclosed sleep-out.  
room.

(b) See page 130.

(c) Includes one-room apartment and bed-sitting.

## Material of Outer Walls

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS (a)  
MATERIAL OF OUTER WALLS: CENSUSES, 1966 AND 1971

Material of outer walls	Private house		Self-contained flat	
	Census, 30 June—		Census, 30 June—	
	1966	1971	1966	1971
Brick ....	89,377	132,634	11,070	22,799
Brick veneer ....	10,938	14,787	231	310
Stone ....	3,090	3,341	244	212
Concrete ....	4,666	2,551	412	671
Timber ....	26,294	33,963	568	492
Metal ....	4,204	4,303	181	113
Fibro-cement ....	61,343	56,868	1,364	848
Other ....	1,251	1,247	11	28
Total ....	201,163	249,694	14,081	25,473

(a) See NOTE on page 551.

## Nature of Occupancy

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS (a)  
NATURE OF OCCUPANCY: CENSUSES, 1966 AND 1971

Nature of occupancy	Private house		Self-contained flat	
	Census, 30 June—		Census, 30 June—	
	1966	1971	1966	1971
Owner (b) ....	150,542	172,145	1,880	3,028
Tenant of government authority ....	16,206	21,139	1,113	2,735
Other tenant ....	29,672	44,020	10,702	18,505
Other methods of occupancy (c) ....	3,899	8,454	309	577
Not stated ....	844	3,936	77	628
Total ....	201,163	249,694	14,081	25,473

(a) See NOTE on page 551.  
including caretaker.

(b) Including purchaser by instalments.

(c) In-

## Facilities

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS (a)  
FACILITIES: CENSUSES, 1966 AND 1971

Facilities	Private house		Self-contained flat	
	Census, 30 June—		Census, 30 June—	
	1966	1971	1966	1971
Gas only .....	731	446	22	24
Electricity only .....	126,765	156,953	5,265	9,431
Gas and electricity .....	70,423	90,131	8,733	15,730
Neither gas nor electricity .....	2,744	830	20	12
Not stated .....	500	1,334	41	276
Total .....	201,163	249,694	14,081	25,473
Television set .....	142,557	197,602	8,130	16,435

(a) See NOTE on page 551.

## Motor Vehicles

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS (a)  
NUMBER OF MOTOR VEHICLES: CENSUSES, 1966 AND 1971

Number of motor vehicles (b)	Private house		Self-contained flat	
	Census, 30 June—		Census, 30 June—	
	1966	1971	1966	1971
No vehicle .....	35,498	33,508	4,875	7,496
1 vehicle .....	106,481	121,910	7,329	14,221
2 vehicles .....	41,384	66,963	1,265	2,617
3 vehicles .....	10,639	16,866	179	298
4 or more vehicles .....	4,333	6,633	44	160
Not stated .....	2,828	3,814	389	681
Total, houses, flats .....	201,163	249,694	14,081	25,473

(a) See NOTE on page 551. (b) At the 1966 Census householders were asked to state 'the number of Motor Vehicles (excluding Motor Cycles and Scooters) used by members of this household that were garaged or parked at or near this dwelling for the night of Thursday, 30 June'. At the 1971 Census, they were asked: 'How many motor vehicles owned or driven by members of your household were garaged or parked at or near this dwelling for the night of Wednesday 30 June 1971. Exclude motor cycles, scooters, tractors. Include company vehicles kept at home.'

## Method of Sewage Disposal

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS  
METHOD OF SEWAGE DISPOSAL: CENSUS 30 JUNE 1971

Method of sewage disposal	Private house				Self-contained flat			
	Urban (a)		Rural (a)	Total	Urban (a)		Rural (a)	Total
	Major	Other			Major	Other		
Mains sewer .....	65,328	12,392	1,716	79,436	18,503	1,099	58	19,660
Separate system .....	94,343	31,713	36,403	162,459	3,665	1,241	273	5,179
Sanitary pan .....	120	1,250	2,353	3,723	11	15	10	36
Other .....	72	89	2,089	2,250	12	1	6	19
Not stated .....	1,003	404	419	1,826	511	65	3	579
Total .....	160,866	45,848	42,980	249,694	22,702	2,421	350	25,473

(a) See page 130.

## Unoccupied Dwellings

## UNOCCUPIED PRIVATE DWELLINGS—CENSUSES, 1966 AND 1971

Reason for being unoccupied	Census, 30 June—				
	1966	1971			
	Total, unoccupied private dwellings	Urban (a)		Rural (a)	Total
		Major	Other		
For sale .....	826	1,554	404	337	2,295
To let .....	1,008	2,882	1,509	811	5,202
Newly completed .....	662	749	422	331	1,502
Vacant for repairs, etc. ....	289	388	218	241	847
Holiday home .....	4,796	175	1,976	4,369	6,520
Condemned .....	384	233	170	532	935
Temporarily unoccupied .....	3,218	3,433	1,728	1,869	7,030
Other and not stated .....	6,284	674	391	2,878	3,943
Total ....	17,467	10,088	6,818	11,368	28,274

(a) See page 130.

## CHAPTER V—SOCIAL CONDITIONS

## PART 5—SOCIAL BENEFITS, PENSIONS AND WELFARE SERVICES

pages 233-5, 238-41, 246, 251

**Pensions, Allowances and other Relief Payments**

The *Social Services Act 1973* and the *Repatriation Act 1973* received the Royal Assent on 16 March 1973. These Acts authorised increases in pensions and some other benefits, as shown in the table below. The Acts provided that payment of the increases in pensions should be made retrospective to various dates in December 1972. The increases in unemployment and sickness benefits came into operation on 16 March 1973, the date of assent to the *Social Services Act 1973*. Payment of tuberculosis allowances at the increased rates was made retrospective to 14 December 1972.

Relief payments by the Department for Community Welfare were increased with effect from 6 December 1972.

**PENSIONS, ALLOWANCES AND OTHER RELIEF PAYMENTS**  
**MAXIMUM RATES—INCREASES FROM 1 JANUARY TO 31 MARCH 1973**

Pension, allowance or other benefit	Rate being paid at 1 January 1973 (per week)	Increase		Rate being paid at 31 March 1973 (per week)
		Enabling Act	Amount per week	
COMMONWEALTH BENEFITS				
Age and invalid pensions—	\$		\$	\$
Unmarried person .....	20.00	No. 1 of 1973	1.50	21.50
Married couple—				
Where both eligible and living together .....	34.50	"	3.00	37.50
Where both eligible and living apart for an indefinite period due to ill health .....	40.00	"	3.00	43.00
Where husband eligible—				
Husband's pension .....	17.25	"	1.50	18.75
Wife's pension .....	17.25	"	1.50	18.75
Where wife eligible .....	20.00	"	1.50	21.50
Widows' pensions—				
Class A .....	20.00	"	1.50	21.50
Class B .....	17.25	"	4.25	21.50
Class C .....	17.25	"	4.25	21.50
Unemployment and sickness benefits—				
Unemployment benefit and short-term sickness benefit—				
Unmarried person—				
Aged 16 and under 18 years .....	7.50	"	14.00	21.50
Aged 18 and under 21 years .....	11.00	"	10.50	21.50
Aged 21 years or more (a) .....	17.00	"	4.50	21.50
Married male with dependent wife .....	25.00	"	12.50	37.50
Long-term sickness benefit—				
Unmarried person—				
Aged 16 and under 21 years .....	13.00	"	8.50	21.50
Aged 21 years or more (a) .....	20.00	"	1.50	21.50
Married male with dependent wife .....	28.00	"	9.50	37.50
War pensions—				
Special rate .....	48.00	No. 2 of 1973	3.10	51.10
Intermediate rate .....	34.00	"	2.55	36.55
General rate .....	14.00	"	2.00	16.00
War widow's pension .....	20.00	"	1.50	21.50
Service pensions—				
Unmarried person .....	20.00	"	1.50	21.50
Married person .....	17.25	"	1.50	18.75
Wife's pension .....	17.25	"	1.50	18.75
Tuberculosis allowances—				
Sufferer with dependent spouse .....	37.75	(b)	3.00	40.75
Sufferer without spouse but with dependent child or children .....	28.00	(b)	1.50	29.50
Sufferer without dependants—				
While undergoing approved domiciliary treatment .....	23.25	(b)	1.50	24.75
While undergoing free hospital treatment .....	20.00	(b)	1.50	21.50
STATE RELIEF PAYMENTS				
Woman with no dependent children and not receiving widow's pension under Social Services Act (Commonwealth) .....	17.25	(c)	4.25	21.50
Woman with a dependent child or children who is not receiving widow's pension under Social Services Act (Commonwealth) .....	20.00	(c)	1.50	21.50

(a) Payable also to unmarried minor with no parent living in Australia. 1948.

(c) Under the authority of the *Welfare and Assistance Act, 1961*.

(b) Under the authority of the *Tuberculosis Act*

**Student Children.** Prior to the operation of the *Social Services Act* 1973 and the *Repatriation Act* 1973, Commonwealth benefits and allowances payable in respect of student children, *i.e.* dependent persons receiving full-time education at a school, college or university, ceased when the student reached the age of 21 years. Under the provisions of the new legislation, payment continues until the student ceases his studies or the parent or other person on whom he is dependent ceases to qualify for pension or other benefit.

**Domiciliary Nursing Care Benefit**

Domiciliary nursing care benefit, payable under the provisions of the *National Health Act* 1972, was introduced with effect from 1 March 1973. Benefit is paid at the rate of \$2 per day to assist in meeting the cost of home nursing for aged persons who are chronically ill and are being cared for in the private home of a relative or other approved person. The benefit applies to a patient who has attained the age of 65 years, has a continuing need for nursing care, and is receiving such care given by or under the supervision of a registered nurse.

## CHAPTER X—INDUSTRIAL CONDITIONS, EMPLOYMENT AND PRICES

## PART 2—EMPLOYMENT

pages 496, 500, 503

NOTE. The tables in this section show some characteristics of the population as recorded at the Census of 30 June 1971. The statistics are final figures and refer to total population, *i.e.* including Aborigines (see NOTE on page 122).

POPULATION CLASSIFIED ACCORDING TO OCCUPATIONAL STATUS  
CENSUS, 30 JUNE 1971

Occupational status	Males	Females	Persons	Percentage of population		
				Males	Females	Persons
In labour force—						
Employed—						
Employer .....	20,027	5,155	25,182	1.94	0.50	2.44
Self-employed .....	27,202	6,344	33,546	2.64	0.62	3.26
Employee (on wage or salary) .....	246,028	113,676	359,704	23.88	11.03	34.91
Unpaid helper .....	1,002	2,296	3,298	0.10	0.22	0.32
Total Employed .....	294,259	127,471	421,730	28.56	12.37	40.93
Unemployed—						
Looking for first job .....	687	589	1,276	0.07	0.06	0.12
Other .....	4,674	2,702	7,376	0.45	0.26	0.72
Total Unemployed .....	5,361	3,291	8,652	0.52	0.32	0.84
Total in labour force .....	299,620	130,762	430,382	29.08	12.69	41.77
Not in labour force—						
Usually working .....	14,398	4,329	18,727	1.40	0.42	1.82
Home duties .....	...	185,768	185,768	...	18.03	18.03
Child at home .....	59,131	55,990	115,121	5.74	5.43	11.17
Child at school .....	113,050	105,854	218,904	10.97	10.27	21.24
Full-time student .....	6,815	5,498	12,313	0.66	0.53	1.19
Other .....	36,052	13,202	49,254	3.50	1.28	4.78
Total not in labour force .....	229,446	370,641	600,087	22.27	35.97	58.23
GRAND TOTAL .....	529,066	501,403	1,030,469	51.34	48.66	100.00

POPULATION ACCORDING TO OCCUPATIONAL STATUS  
CENSUS, 30 JUNE 1971  
AUSTRALIAN STATES AND TERRITORIES

Occupational status	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Australia
MALES									
In labour force—									
Employed—									
Employer....	72,921	57,778	38,202	19,468	20,027	6,841	939	1,616	217,792
Self-employed .....	97,423	86,545	48,599	29,713	27,202	8,442	888	1,610	300,422
Employee (on wage or salary) .....	1,140,731	828,082	412,867	275,292	246,028	90,627	26,715	38,330	3,058,672
Unpaid helper .....	2,880	2,584	1,785	1,009	1,002	277	39	64	9,640
Total Employed .....	1,313,955	974,989	501,453	325,482	294,259	106,187	28,581	41,620	3,586,526
Unemployed—									
Looking for first job .....	2,880	2,187	1,227	868	687	226	81	81	8,237
Other .....	15,585	11,891	6,644	3,814	4,674	1,560	374	334	44,876
Total Unemployed .....	18,465	14,078	7,871	4,682	5,361	1,786	455	415	53,113
Total in labour force .....	1,332,420	989,067	509,324	330,164	299,620	107,973	29,036	42,035	3,639,639
Not in labour force .....	974,790	760,994	412,341	255,887	229,446	88,469	19,591	31,554	2,773,072
Total males .....	2,307,210	1,750,061	921,665	586,051	529,066	196,442	48,627	73,589	6,412,711

POPULATION ACCORDING TO OCCUPATIONAL STATUS  
CENSUS, 30 JUNE 1971  
AUSTRALIAN STATES AND TERRITORIES—continued

Occupational status	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Australia
FEMALES									
In labour force—									
Employed—									
Employer ....	19,333	16,338	10,674	5,832	5,155	1,727	243	344	59,646
Self-employed ....	24,732	22,584	13,128	8,302	6,344	1,892	221	434	77,637
Employee (on wage or salary) ....	563,896	429,310	181,439	135,712	113,676	39,649	9,474	21,142	1,494,298
Unpaid helper ....	6,942	5,953	3,934	2,240	2,296	760	67	129	22,321
Total Employed ....	614,903	474,185	209,175	152,086	127,471	44,028	10,005	22,049	1,653,902
Unemployed—									
Looking for first job ....	2,709	2,068	1,118	927	589	277	46	90	7,824
Other ....	10,097	7,671	4,305	2,746	2,702	984	208	410	29,123
Total Unemployed ....	12,806	9,739	5,423	3,673	3,291	1,261	254	500	36,947
Total in labour force	627,709	483,924	214,598	155,759	130,762	45,289	10,259	22,549	1,690,849
Not in labour force ....	1,666,261	1,268,366	690,802	431,897	370,641	148,682	27,504	47,925	4,652,078
Total females ....	2,293,970	1,752,290	905,400	587,656	501,403	193,971	37,763	70,474	6,342,927

INDUSTRY OF THE POPULATION  
CENSUS, 30 JUNE 1971

Industry division and sub-division (a)	Males	Females	Persons		
			Number	Percentage of—	
				Labour force	Population
Employed persons—					
Agriculture, forestry, fishing and hunting—					
Agriculture ....	27,870	6,413	34,283	7.97	3.33
Other and undefined ....	4,725	300	5,025	1.17	0.49
Total, Agriculture, forestry, fishing and hunting ....	32,595	6,713	39,308	9.13	3.81
Mining—					
Metallic minerals ....	10,857	751	11,608	2.70	1.13
Other and undefined ....	4,646	807	5,453	1.27	0.53
Total, Mining ....	15,503	1,558	17,061	3.96	1.66
Manufacturing—					
Food, beverages and tobacco ....	8,139	3,646	11,785	2.74	1.14
Wood, wood products and furniture (except sheet metal) ....	7,183	969	8,152	1.89	0.79
Paper and paper products, printing and publishing ....	3,957	1,538	5,495	1.28	0.53
Glass, clay and other non-metallic mineral products ....	4,251	426	4,677	1.09	0.45
Basic metal products ....	4,898	345	5,243	1.22	0.51
Fabricated metal products ....	7,061	955	8,016	1.86	0.78
Transport equipment ....	5,310	232	5,542	1.29	0.54
Other industrial machinery and equipment and household appliances ....	5,818	856	6,674	1.55	0.65
Other and undefined ....	5,017	2,673	7,690	1.79	0.75
Total, Manufacturing ....	51,634	11,640	63,274	14.70	6.14
Electricity, gas and water ....	4,224	419	4,643	1.08	0.45
Construction—					
General construction ....	26,667	1,328	27,995	6.50	2.72
Special trade contracting ....	14,194	899	15,093	3.51	1.46
Total, Construction (b) ....	41,865	2,241	44,106	10.25	4.28
Wholesale and retail trade—					
Wholesale trade ....	21,537	8,081	29,618	6.88	2.87
Retail trade ....	27,073	25,845	52,918	12.30	5.14
Total, Wholesale and retail trade (b) ....	48,622	33,935	82,557	19.18	8.01

(a) Only those sub-divisions in which 4,300 or more persons (1 per cent of the labour force or more) were recorded are shown separately. (b) Including 'undefined', i.e. persons who could not be accurately assigned to one of the sub-divisions shown.

INDUSTRY OF THE POPULATION  
CENSUS, 30 JUNE 1971—*continued*

Industry division and sub-division (a)	Males	Females	Persons		
			Number	Percentage of—	
				Labour force	Population
Employed persons— <i>continued</i>					
Transport and storage—					
Road transport .....	10,228	1,340	11,568	2.69	1.12
Railway transport .....	4,988	332	5,320	1.24	0.52
Other and undefined .....	7,705	1,115	8,820	2.05	0.86
Total, Transport and storage .....	22,921	2,787	25,708	5.97	2.49
Communication .....	6,220	2,044	8,264	1.92	0.80
Finance, insurance, real estate and business services—					
Finance and investment .....	5,230	4,197	9,427	2.19	0.91
Insurance .....	2,687	1,975	4,662	1.08	0.45
Real estate and business services .....	8,523	5,418	13,941	3.24	1.35
Total, Finance, insurance, real estate and business services (b) .....	16,463	11,596	28,059	6.52	2.72
Public administration and defence—					
Public administration .....	11,427	5,687	17,114	3.98	1.66
Defence .....	3,959	341	4,300	1.00	0.42
Total, Public administration and defence (b) .....	15,394	6,031	21,425	4.98	2.08
Community services—					
Health .....	5,365	17,223	22,588	5.25	2.19
Education, libraries, museums and art galleries .....	7,078	9,677	16,755	3.89	1.63
Other and undefined .....	5,777	2,765	8,542	1.98	0.83
Total, Community services .....	18,220	29,665	47,885	11.13	4.65
Entertainment, recreation, restaurants, hotels and personal services—					
Restaurants, hotels and clubs .....	4,157	8,485	12,642	2.94	1.23
Personal services .....	1,787	3,417	5,204	1.21	0.51
Other and undefined .....	2,455	2,197	4,652	1.08	0.45
Total, Entertainment, recreation, restaurants, hotels and personal services .....	8,399	14,099	22,498	5.23	2.18
Non-classifiable establishments .....	12,199	4,743	16,942	3.94	1.64
Total, Employed persons .....	294,259	127,471	421,730	97.99	40.93
Unemployed persons .....	5,361	3,291	8,652	2.01	0.84
Total persons in the labour force .....	299,620	130,762	430,382	100.00	41.77
Persons not in the labour force .....	229,446	370,641	600,087	....	58.23
TOTAL POPULATION .....	529,066	501,403	1,030,469	....	100.00

(a) Only those sub-divisions in which 4,300 or more persons (1 per cent of the labour force or more) were recorded are shown separately. (b) Including 'undefined', i.e. persons who could not be accurately assigned to one of the sub-divisions shown

## OCCUPATIONS OF THE POPULATION—CENSUS, 30 JUNE 1971

Major and minor group	Males	Females	Persons
<b>Employed persons—</b>			
<b>Professional, technical and related workers—</b>			
Architects, engineers and surveyors, professional .....	1,166	6	1,172
Chemists, physicists, geologists and other physical scientists .....	935	61	996
Biologists, veterinarians, agronomists and related scientists .....	630	77	707
Medical practitioners and dentists .....	1,281	138	1,419
Nurses, including probationers or trainees .....	334	6,869	7,203
Professional medical workers, n.e.c. ....	677	442	1,119
Teachers .....	5,377	6,473	11,850
Clergy and related members of religious orders .....	848	223	1,071
Law professionals .....	458	24	482
Artists, entertainers, writers and related workers .....	1,432	807	2,239
Draftsmen and technicians, n.e.c. ....	8,239	1,478	9,717
Other professional, technical and related workers .....	3,166	984	4,150
<b>Total</b> .....	<b>24,543</b>	<b>17,582</b>	<b>42,125</b>
<b>Administrative, executive and managerial workers—</b>			
Administrative and executive officials, government, n.e.c. ....	1,196	12	1,208
Employers, workers on own account, directors, managers, n.e.c. ....	23,483	3,423	26,906
<b>Total</b> .....	<b>24,679</b>	<b>3,435</b>	<b>28,114</b>
<b>Clerical workers—</b>			
Book-keepers and cashiers .....	3,403	3,664	7,067
Stenographers and typists .....	....	13,144	13,144
Other clerical workers .....	19,654	23,597	43,251
<b>Total</b> .....	<b>23,057</b>	<b>40,405</b>	<b>63,462</b>
<b>Sales workers—</b>			
Insurance, real estate salesmen, auctioneers and valuers .....	2,637	138	2,775
Commercial travellers and manufacturers' agents .....	3,608	180	3,788
Proprietors and shopkeepers, workers on own account, n.e.c., retail and wholesale trade, salesmen, shop assistants and related workers .....	9,712	18,328	28,040
<b>Total</b> .....	<b>15,957</b>	<b>18,646</b>	<b>34,603</b>
<b>Farmers, fishermen, hunters, timber getters and related workers—</b>			
Farmers and farm managers .....	19,706	3,854	23,560
Farm workers, including farm foremen .....	12,265	1,985	14,250
Wool classers .....	248	5	253
Hunters and trappers .....	65	....	65
Fishermen and related workers .....	1,497	39	1,536
Timber getters and other forestry workers .....	882	25	907
<b>Total</b> .....	<b>34,663</b>	<b>5,908</b>	<b>40,571</b>
<b>Miners, quarrymen and related workers—</b>			
Miners, mineral prospectors and quarrymen .....	4,654	14	4,668
Well drillers, oil, water and related workers .....	258	1	259
Mineral treaters .....	738	....	738
<b>Total</b> .....	<b>5,650</b>	<b>15</b>	<b>5,665</b>
<b>Workers in transport and communication—</b>			
Deck and engineer officers, ship .....	518	1	519
Deck and engine room hands, ship and boatmen .....	852	....	852
Aircraft pilots, navigators and flight engineers .....	321	4	325
Drivers and firemen, rail transport .....	1,091	....	1,091
Drivers, road transport .....	13,762	1,112	14,874
Guards and conductors, railway .....	419	....	419
Inspectors, supervisors, traffic controllers and dispatchers, transport .....	1,864	15	1,879
Telephone, telegraph and related telecommunication operators .....	354	2,147	2,501
Postmasters, postmen and messengers....	1,720	343	2,063
Workers in transport and communication, n.e.c. ....	634	132	766
<b>Total</b> .....	<b>21,535</b>	<b>3,754</b>	<b>25,289</b>

n.e.c. denotes 'not elsewhere classified'.

OCCUPATIONS OF THE POPULATION—CENSUS, 30 JUNE 1971—*continued*

Major and minor group	Males	Females	Persons
<i>Employed persons—continued</i>			
Tradesmen, production-process workers and labourers, n.e.c.—			
Spinners, weavers, knitters, dyers and related workers	244	125	369
Tailors, cutters, furriers and related workers	941	1,770	2,711
Leather cutters, lasters, sewers (except gloves and garments) and related workers	269	221	490
Furnacemen, rollers, drawers, moulders and related metal making and treating workers	1,222	....	1,222
Precision instrument makers, watchmakers, jewellers and related workers	1,095	56	1,151
Toolmakers, metal machinists, mechanics, plumbers and related metal workers	28,332	73	28,405
Electricians and related electrical and electronics workers	10,298	17	10,315
Metal workers, metal and electrical production-process workers, n.e.c.	3,997	489	4,486
Carpenters, woodworking machinists, cabinetmakers and related workers	11,091	310	11,401
Painters and decorators	4,094	33	4,127
Bricklayers, plasterers and construction workers, n.e.c.	10,357	2	10,359
Compositors, printing machinists, engravers, bookbinders and related workers	2,042	519	2,561
Potters, kilnmen, glass and clay formers and related workers	647	77	724
Millers, bakers, butchers, brewers and related food and drink workers	5,461	1,500	6,961
Chemical, sugar and paper production process workers	1,027	96	1,123
Tobacco preparers and tobacco product makers	....	1	1
Paper products, rubber, plastic and production process workers, n.e.c.	1,458	484	1,942
Packers, wrappers, labellers	592	1,196	1,788
Stationary engine, excavating and lifting equipment operators	7,374	20	7,394
Storemen and freight handlers	8,348	362	8,710
Labourers, n.e.c.	14,766	638	15,404
<b>Total</b>	<b>113,655</b>	<b>7,989</b>	<b>121,644</b>
<i>Service, sport and recreation workers—</i>			
Fire brigade, police and other protective service workers	3,136	105	3,241
Housekeepers, cooks, maids and related workers	1,774	10,285	12,059
Waiters, bartenders	759	3,481	4,240
Building caretakers, cleaners	2,260	3,668	5,928
Barbers, hairdressers and beauticians	552	1,774	2,326
Laundresses, dry cleaners and pressers	262	1,241	1,503
Athletes, sportsmen and related workers	285	83	368
Photographers and camera operators	258	50	308
Undertakers and crematorium workers	71	2	73
Service, sports, recreation workers, n.e.c.	1,640	3,259	4,899
<b>Total</b>	<b>10,997</b>	<b>23,948</b>	<b>34,945</b>
Members of armed services	3,141	86	3,227
Occupation inadequately described or not stated	16,382	5,703	22,085
<b>Total, Employed persons</b>	<b>294,259</b>	<b>127,471</b>	<b>421,730</b>
<i>Unemployed persons—</i>			
Looking for first job	687	589	1,276
Other	4,674	2,702	7,376
<b>Total, Unemployed persons</b>	<b>5,361</b>	<b>3,291</b>	<b>8,652</b>
<b>Total in labour force</b>	<b>299,620</b>	<b>130,762</b>	<b>430,382</b>
<b>Not in labour force</b>	<b>229,446</b>	<b>370,641</b>	<b>600,087</b>
<b>TOTAL POPULATION</b>	<b>529,066</b>	<b>501,403</b>	<b>1,030,469</b>

n.e.c. denotes 'not elsewhere classified'.

### THE 45th ANZAAS CONGRESS: PERTH, 1973 <sup>(1)</sup>

The Australian and New Zealand Association for the Advancement of Science held its first Congress in Sydney in August 1888. The idea had, however, been first mooted by Professor A. Liversidge as long ago as 1879 when he proposed that an Australasian Society, modelled along the lines of the British Association for the Advancement of Science, founded in 1831, be established. Indeed, the worldwide attention given to an announcement made at the 1884 Montreal meeting of the British Association for the Advancement of Science of Caldwell's discovery of the oviparous nature of the platypus and porcupine has led to the suggestion that the British Association might one day meet in Australia. A suggestion which, because of the excessive cost and time required for a party of British scientists to come out to Australia, was turned into the proposal that there should be an independent Australian association holding its own Congress. The date for the first Australasian Congress was chosen so as to coincide with the Centennial Celebration of the founding of the Colony of New South Wales. Although Sydney was chosen as the first venue it was also proposed that the Australasian Association for the Advancement of Science, as it was then called, should move from capital city to capital city so that each part of Australia and New Zealand should have an equal share in its affairs.

It is worth recalling that at this first meeting John Forrest (later to become the first Premier of Western Australia and a Lord) was elected President of Section E, Geography, and gave a wide-ranging presidential address directed toward the geographical basis for Australian federation and what he described as a scientific view of that problem.

Unfortunately, John Forrest appears to have been the only resident Western Australian member, and proper links with Western Australia were not finally forged until nearly forty years later when the 18th Congress in 1926 was held at Perth, by which time it had already visited New Zealand three times.

The Association rapidly became the focal point for the expression of national viewpoints in science; a means by which to announce new discoveries, to provide formal and informal national contacts between scientists, to enable affiliated societies to hold annual meetings, and to make resolutions calling for national and state policy changes with regard to science, technology and education. The Association from the beginning threw its membership open to the general public, making no inquiry as to qualifications. The holding of a Congress thus immediately became a matter of considerable public interest and concern to the host State and government support quickly followed—traditions which remain to this day.

The first Perth ANZAAS Congress was held in Perth Modern School as the accommodation there was more attractive than that possessed by the then struggling University. The Perth meeting carried on the, by now, well established traditions of the Association and discussions ranged from atomic transmutation, Australian flora and fauna and the Wegener hypothesis, and the treatment of low grade ores on the one hand, to the question of forestry and land settlement, Federal and State financial relations, the treatment and neglect of Aborigines and the biological control of pests on the other.

It is worth recalling that among the Western Australians who attended that meeting some forty-seven years ago were Professor Freddie Alexander, Dr Dom Serventy, and Mr J. B. Shearer.

The second Perth and the 26th ANZAAS Congress took place in 1947, some twenty-one years after the first, and it is interesting to note that the presidential address by Dr A. E. V. Richardson entitled *Science in relation to Australia's development*, was very close to the theme chosen for the present Perth Congress. Looking through the programme for the second meeting, one is struck by the more contemporary character of science and the increased scale of the scientific programme. One paper which reads, to Western Australian eyes at least, as prophetic, was read by the then Director of the Commonwealth Bureau of Mineral Resources, Dr H. G. Raggatt (who was later knighted). The title,

<sup>(1)</sup> Contributed by Professor M. J. Webb, Honorary Organising Secretary, 45th Congress of the Australian and New Zealand Association for the Advancement of Science.

*Depletion of mineral resources—a challenge to geology and geophysics*, introduced the idea that the reserves of mineral resources were, in the first instance, a reflection of a lack of exploration effort rather than of geology.

The third Perth and the 34th ANZAAS Congress took place in 1959 when Dr H. C. Coombs was elected President, the first Western Australian to be so honoured. It is interesting to note that the theme for his presidential address was rising prices and inflation under the title of *A matter of prices*, an attitude toward contemporary problems which was echoed by Professor P. H. Karmel in his address to the economists on *Inflation, productivity and growth*. Times do not appear to have changed.

Among the many other papers delivered was one by C. S. Christian, Chief, Division of Land Research and Regional Survey, C.S.I.R.O. entitled *Future revolution in Agriculture in Northern Australia* which was notable for its grasp of the problem.

The 45th ANZAAS Congress is thus only the fourth to be held in Western Australia. The Congress comes to Western Australia at a moment when the State has more than come of age as a scientific community. The University of Western Australia, the official host to the Congress, is now approaching its planned capacity of 10,000 students; it has recently been joined by the Western Australian Institute of Technology which has already achieved high standing in its field. The proposed second university, named after one of Western Australia's famous scholars, Walter Murdoch, will soon begin teaching and research. Since the last Congress in Perth, there has also been a maturing of State, Commonwealth and private scientific organisations and institutions.

The Western Australian scientific community is thus both a producer and a consumer of science and of scientists, and there are few branches of knowledge which are in fact neither studied, researched into, nor applied in Western Australia. The professions which support science have also developed since 1959 and it is no exaggeration to say that the Western Australia which greets the 45th Congress is vastly different from its 1959 predecessor. The mineral and agricultural developments which have occurred elsewhere in the State are symbolised by the very obvious changes in the City of Perth and the surrounding suburbs. In 1959 the population of Western Australia was approximately 712,000. Today it is about 50 per cent greater at approximately 1,060,000.

The use of science and technology by the community is now widespread and no longer confined to such fields as agriculture. Yet, the challenge remains. Western Australia is still relatively undiscovered scientifically speaking, and its destiny in conservation, development and human values is still very much a matter for scientific conjecture. There is no doubt that the support given to science is great, and the value of science and technology is widely appreciated by the community. Nonetheless the gap remains and in Western Australia, there are still far more problems than scientists. Thus, to regard research as merely a by-product of either university teaching or of operational applied science is no longer appropriate to the long term challenges of our environment.

A State as isolated as Western Australia must establish an independent research foundation to support research directed at State problems and aimed to give greater opportunity for research to scientists employed in universities and technical institutes. To do this, the State should devote a fixed proportion of all its royalties from mineral and other sources to long-term research in institutes of learning. The present high state of agriculture in Western Australia may be attributed to the ploughing back of money by farmers into long-term research over many years, a task for which our President of ANZAAS for the 45th Congress, Professor Eric Underwood, F.R.S., was ideally suited to take a leading part in his erstwhile capacity as Director of the Institute of Agriculture.

The presence of so many scientists in Western Australia for the Congress will help in the formulation of the next stage of scientific development in the West. The future will involve wise management, better and more effective social and economic objectives, clear definitions of problems and continuing research to solve them and, above all, the development of the State of Western Australia according to the best principles of science and of environmental responsibility.

It comes, therefore, as a special privilege to acknowledge, on behalf of the Organising Committee of the 45th ANZAAS and the fourth Perth Congress, the very real support given by the Government of Western Australia to ANZAAS and the personal interest and support shown by the Premier, the Honourable John Tonkin, M.L.A., in the Association.

### THE WEST AUSTRALIAN ECONOMY, 1959 TO 1973 <sup>(1)</sup>

The object of this article is to give a brief survey of the West Australian economy from 1959 to 1973. Personal income in Western Australia rose from \$642 million in 1959-60 to \$1,977 million in 1970-71. In that year personal income per head of population was \$1,955. The period covers the end of the boom in 1959 to 1961 and the recession in 1962-63, with gradual recovery to boom again in the late 1960s, and a recession in 1972. In 1973, the current outlook is again for recovery from recession. The chief sources for tables in the article are publications from the Commonwealth Bureau of Census and Statistics, and *Economic Activity*, published quarterly for the Faculty of Economics and Commerce in the University of Western Australia by the University of Western Australia Press.

#### Overseas Exports

The West Australian economy is dependent upon overseas markets for its primary products. In 1959, it was still true to say that the chief exports were wheat and wool and other rural products. The most obvious development since then has been the rapid expansion in the value of exports of the mining industries. The total value of exports overseas rose from \$240.2 million in 1959-60 to \$948.8 million in 1971-72, and the excess of overseas exports above imports from overseas rose from \$147.8 million in 1959-60 to \$666.1 million in 1971-72. (See Table 1).

TABLE 1—OVERSEAS TRADE  
(\$m)

Year	Imports	Exports	Balance
1959-60	92.4	240.2	+147.8
1960-61	110.6	319.0	+208.4
1961-62	100.2	288.2	+188.0
1962-63	112.6	247.4	+134.8
1963-64	121.7	286.7	+165.0
1964-65	153.5	243.1	+ 89.6
1965-66	176.0	314.4	+138.4
1966-67	159.4	421.3	+261.9
1967-68	207.0	475.3	+268.3
1968-69	203.5	547.1	+343.6
1969-70	242.3	674.6	+432.3
1970-71	278.3	862.4	+584.1
1971-72	282.7	948.8	+666.1

The prices and markets for primary products have always been volatile. The increased importance of mineral exports does not alter this situation, although many mining industries have been able to insulate themselves to some extent against market fluctuations by obtaining long-term contracts, mainly with Japanese industries.

The value of production from mining and quarrying rose from \$31.1 million in 1961-62 to \$168.6 million in 1968-69, but the big jump occurred in 1966-67 when the figure rose to \$63.1 million from \$35.1 million in the previous financial year. (See Table 2).

<sup>(1)</sup> Contributed by Dr A. Cook, Senior Lecturer in Economics, University of Western Australia.

TABLE 2—ESTIMATED VALUE OF OUTPUT  
OF MINING AND QUARRYING, 1959-60 TO 1968-69  
(\$m)

Year	Value of output
1959-60	29.54
1960-61	30.88
1961-62	31.10
1962-63	32.24
1963-64	30.70
1964-65	32.16
1965-66	35.19
1966-67	63.10
1967-68	110.27
1968-69	168.60

### The Mineral Industries

Needless to say, the rapid expansion of the mineral industries was accompanied by considerable investment in mining equipment, transport facilities, port loading facilities and all the infra-structure investment necessary with the rapid growth of mining towns and ports. The development of large bulk ore carriers causing reduced transport costs for overseas exports was an important economic factor leading to the growth of mining. This investment has been most evident in the iron ore industry in such centres as Tom Price and Newman, and ports such as Dampier and Port Hedland. The development of the nickel industry, and bauxite for alumina followed behind the spectacular development in the production of iron ore, and in the years ahead may gradually increase in importance relatively to the iron ore industry. In 1971-72, the value of production of iron ore was \$352 million as against \$88 million for nickel concentrates and \$82 million for alumina. (See Table 3).

TABLE 3—VALUE OF PRODUCTION OF MINERALS, 1966-67 TO 1971-72  
(\$'000)

Product	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72
Iron ore	43,291	92,356	138,598	260,722	366,258	352,092
Nickel concentrates	21,077	....	14,106	44,901	95,794	88,902
Alumina	....	....	....	53,574	72,586	82,478
Petroleum	4,746	4,736	36,799	56,830	43,926	36,302
Coal	22,567	21,173	4,852	5,407	5,653	5,854
Gold	....	....	18,935	15,760	13,872	....
Natural gas	....	....	....	....	....	1,293
Limestone	753	800	1,092	1,271	1,346	1,267
Manganese	3,740	3,464	3,327	3,329	3,105	2,113
Salt	....	....	437	3,766	8,355	6,159
Nickel ore	....	....	....	222	3,361	2,533
Tin concentrates	2,021	2,339	1,440	1,853	1,653	3,156
TOTAL	88,320	143,386	213,832	462,851	633,477	614,035

NOTE. The total value of production of minerals given in the various columns in Table 3 is estimated on a different basis from the figures given in Table 2. The total includes the value of production of many minerals other than the main ones such as iron ore, nickel, alumina, petroleum and gold. The total value includes such minerals as beryl, building stone, clays, cobalt, copper, feldspar, glass sand, gypsum, lithium ores, mineral sands, peat, semi-precious stones, silver, talc, etc.

### The Manufacturing Industries

Manufacturing firms in Western Australia are mostly small-scale and producing for the local market, although there is some sale of manufactured goods to other Australian States and overseas. The value of output of manufacturing has risen from \$172.7 million in 1959-60 to \$388.2 million in 1967-68. Undoubtedly, the development of the mining boom in the second half of the 1960s gave a boost to manufacturing industries which provided some of the materials required for the development of the mining towns and ports. (See Table 4).

TABLE 4—VALUE OF PRODUCTION OF  
MANUFACTURING INDUSTRIES, 1959-60 TO 1967-68  
(\$m)

Year	Total primary	Manu- facturing	Total net value of recorded production
1959-60 ....	223.90	172.74	396.64
1960-61 ....	232.46	193.26	425.72
1961-62 ....	247.88	196.08	443.96
1962-63 ....	255.82	216.42	472.24
1963-64 ....	266.66	230.52	497.18
1964-65 ....	266.73	260.64	527.37
1965-66 ....	363.49	288.80	652.29
1966-67 ....	386.37	335.79	722.16
1967-68 ....	440.67	388.26	828.96

### Interstate Trade

Whereas Western Australia always has a surplus of the value of exports over the value of imports in overseas trade, it always has a deficit in trade with other Australian States. For example, in 1971-72 the value of exports to other States was \$138.5 million and the value of imports from other States was \$788.3 million, giving a deficit of \$649.8 million. (See Table 5). The position of the West Australian economy is complementary to that of the other Australian States in that it earns a surplus from exports overseas which enables it to pay for the net imports of manufactured goods and services from other Australian States.

TABLE 5—INTERSTATE TRADE  
(\$m)

Year	Imports	Exports	Balance
1963-64 ....	323.2	101.2	—222.0
1964-65 ....	343.9	120.0	—223.9
1965-66 ....	396.3	119.5	—276.8
1966-67 ....	474.9	116.0	—358.9
1967-68 ....	527.1	124.5	—402.6
1968-69 ....	562.3	149.9	—412.4
1969-70 ....	640.2	149.9	—490.3
1970-71 ....	727.2	151.1	—576.1
1971-72 ....	788.3	138.5	—649.8

### Population and Employment

The population of the State has steadily increased over the period under review. The estimated population at the end of the financial year 1959-60 was 772,000 rising to 1,053,000 at the end of 1971-72. (See Table 6).

TABLE 6—ESTIMATED POPULATION, 1959-60 TO 1971-72

Year	Estimated population ('000)
1959-60 ....	722.1
1960-61 ....	736.6
1961-62 ....	755.4
1962-63 ....	777.2
1963-64 ....	796.9
1964-65 ....	813.4
1965-66 ....	835.6
1966-67 ....	878.6
1967-68 ....	913.8
1968-69 ....	952.9
1969-70 ....	988.9
1970-71 ....	1,030.5
1971-72 ....	1,053.2

The number of wage and salary earners in civilian employment rose from 193,000 in 1959 to 342,000 in 1972. (See Table 7).

TABLE 7—WAGE AND SALARY EARNERS IN CIVILIAN EMPLOYMENT, 1959 TO 1972 (a)

June—	Persons ('000)
1959 .....	193.3
1960 .....	197.9
1961 .....	199.7
1962 .....	208.1
1963 .....	214.9
1964 .....	222.9
1965 .....	234.2
1966 .....	248.4
1967 .....	266.6
1968 .....	286.3
1969 .....	303.7
1970 .....	323.7
1971 .....	343.8
1972 .....	342.2

(a) Excluding employees in rural industry and private domestic service and defence forces.

There has been a gradual fall in the proportion of the population working in rural industries and a rise of the proportion working in the tertiary industries, thus leading to the rapid growth of the Perth metropolitan area which is typical of Australian capital cities. Figures from the 1966 Census give a distribution of the work force between the different industries as shown in Table 8. The Commonwealth Bureau of Census and Statistics' available figures for wage and salary earners in civilian employment in June 1972 are also given to illustrate the trends of change. For example, employment in mining and quarrying rose from 8,331 persons to 14,600 in the six years from June 1966 to June 1972.

TABLE 8—EMPLOYMENT BY INDUSTRY, JUNE 1966 AND 1972

Industry group	Persons	Persons
	June, 1966	June, 1972
Primary production—		
Rural industries .....	40,642	n.a.
Forestry, fishing and trapping .....	2,796	1,600
Total, Primary production .....	43,438	n.a.
Mining and quarrying .....	8,331	14,600
Manufacturing .....	60,893	69,600
Electricity, gas, water and sanitary services .....	5,854	8,200
Building and construction .....	35,067	31,700
Transport and storage .....	23,902	23,000
Communication .....	7,039	9,900
Finance and property .....	11,768	16,000
Commerce .....	61,076	63,100
Public authority activities .....	13,938	16,900
Community and business services—		
Health, hospitals, etc. ....	16,379	24,100
Education .....	14,446	20,900
Other (including professional) .....	11,369	16,800
Total, Community and business services .....	42,194	61,800
Amusement, hotels, cafes, personal service, etc. ....	20,548	25,700
TOTAL, ALL INDUSTRIES .....	339,579	342,200

n.a. denotes 'not available'.

### Housing and Construction

As in all Australian States, the housing and construction industries are very important in the West Australian economy, because of the large number of industries supplying materials and components for housing and construction. Also, it is an industry which is very prone to cyclical fluctuations. The growth of the value of all buildings is illustrated

in Table 9, which shows the increase in the value of building permits approved from \$69 million in 1959-60 to \$310 million in 1971-72. This table also shows the effect of the boom at the end of the 1960s, when the value of building permits approved was \$395 million in 1969-70, and fell to \$323 million in 1970-71 and \$310 million in 1971-72.

TABLE 9—BUILDING PERMITS AND APPROVALS  
(Including additions and alterations)  
(\$'000)

Year	Private	Government	Total
1959-60	49,264	20,066	69,330
1960-61	49,848	22,286	72,134
1961-62	50,730	28,936	79,666
1962-63	62,416	23,654	86,070
1963-64	83,278	41,132	124,410
1964-65	107,296	34,578	141,874
1965-66	94,042	38,572	132,614
1966-67	129,879	43,314	173,193
1967-68	188,950	63,849	252,799
1968-69	257,189	62,249	319,438
1969-70	312,850	82,258	395,108
1970-71	255,981	67,604	323,585
1971-72	242,727	67,523	310,250

In 1973, we have the typical situation in the recovery phase after a slump in building where there is a shortage of skilled building tradesmen, such as bricklayers, because many of the tradesmen employed in the boom years moved out of the building and construction industries during the slump period.

As in New South Wales, an outstanding feature of housing finance in Western Australia has been the rapid growth in the assets and lending for housing by West Australian building societies. Table 10 shows something of this expansion and the part played by permanent building societies. Total advances on mortgages rose from \$15 million in 1959-60 to \$223 million in 1970-71.

The skyline of Perth has changed very considerably since 1959, because of the construction of many large office buildings.

TABLE 10—PERMANENT BUILDING SOCIETIES

Year	Number of members	Number of borrowers	Total assets	Advances on mortgages
			\$'000	\$'000
1959-60	26,117	5,761	15,794	15,303
1960-61	25,174	6,356	18,757	18,250
1961-62	24,640	6,629	21,256	20,630
1962-63	27,078	7,502	25,837	24,930
1963-64	28,074	8,252	31,362	29,978
1964-65	30,691	9,055	37,466	35,456
1965-66	32,527	9,214	39,381	37,189
1966-67	33,366	10,200	46,564	43,065
1967-68	42,181	13,036	62,984	56,528
1968-69	50,655	16,712	105,696	90,410
1969-70	85,796	23,061	191,278	163,979
1970-71	115,334	26,083	267,870	223,909

### The Economic Outlook in 1973

The general outlook for 1973 should be one of optimism for recovery from the slump of 1972. Available statistics for the chief economic indicators—trading bank deposits, savings bank deposits, building society deposits, housing loans, finance company lending, registration of new motor vehicles, retail sales, and so on—all add up to a picture of likely

growth in 1973 and 1974. The slump of 1972 was characterised by a rate of unemployment of the available workforce of about 2 per cent, which is regarded as unsatisfactory in Australia, but would not be regarded as unsatisfactory on the basis of international comparisons. There should be a reduction in the level of unemployment in 1973.

Because the West Australian economy is export-oriented, there needs to be a favourable outlook in international markets for exports, such as minerals, wheat and wool. The present outlook for these commodities on world markets is good. The price of wool is quite good compared to the low levels of 1970. There is likely to be a world shortage of wheat, with a very small world carry-over, whereas in previous years the outlook was one of over-production of wheat, and quotas for wheat production were imposed. With the likely recovery from slump of Australia's main trading partners—Japan, the United States of America, the United Kingdom and Western Europe—there should be increased markets for increased mineral output.

Undoubtedly, the revaluation of the Australian Dollar in December 1972 by virtually 7.05 per cent in relation to the United States Dollar, caused a set-back for the export industries. This was particularly the case for the mining firms which have long-term contracts with Japanese industries written in terms of United States Dollars. Unfortunately, we cannot say with confidence that the United States Dollar is not likely to again fall in value. The current outlook is for considerable likelihood that the United States Dollar will again be depreciated<sup>(\*)</sup>, or other main world currencies, such as the Japanese Yen and the West German Deutsche Mark, will be appreciated, or a combination of both could occur. The best that we can hope for is the attainment of more stability in the international monetary system in 1973 and 1974, which will help to provide a more favourable environment in our export markets. More world monetary crises could disrupt the increased flow of exports on which the Western Australian economy depends for growth.

There are still enough large-scale projects either commenced, or still in the planning stage which, if some of them are completed, will ensure the same sort of boom in the 1970s as we experienced in the late 1960s. Apart from the planned public works projects, there are large planned private enterprise projects, such as, for example, a Broken Hill Proprietary Company Limited steel works (\$1,600 million); an Amax Bauxite Corporation mining and alumina treatment plant (\$350 million); the Pacminex alumina refinery at Muchea (\$190 million); and Hanwright Iron Mines at Wittenoom, an iron ore mining and processing plant (\$150 million).

Discoveries of new mineral deposits are still being made. For example, on 7 February 1973, Goldsworthy Mining Limited announced the proving of 700 million tons of iron ore reserves at Marra Mamba, 210 miles south of Port Hedland.

### Summary

1. The West Australian economy achieved a high rate of growth in the period 1959 to 1973.
2. There was also a high rate of population growth in Western Australia from 1959 to 1973.
3. Undoubtedly, the leading sector in the boom of the second half of the 1960s was the mining industries, with iron ore mining being the most spectacular, followed by nickel and bauxite mining.
4. The West Australian economy is an export-oriented one, with a large surplus of overseas exports, but a deficit on its trading with other Australian States within the Australian economy.
5. The chief exports overseas from West Australia—minerals, wheat and wool and other rural products—are subject to the fluctuations in world markets for these commodities.
6. The manufacturing industries in Western Australia are mainly small-scale, and mainly producing for the local market.
7. There has been a satisfactory growth in the rate of increase in the numbers employed in Western Australia in the period 1959 to 1973. As is to be expected, in the second half

---

(\*) The United States Dollar was, in fact, devalued by 10 per cent on 13 February 1973, shortly after this article was written—Ed.

of the 1960s, there was an increase in employment in mining industries, and there has been an increase in employment in tertiary industries, particularly in the Perth metropolitan area.

8. There was a boom in the housing and construction industries in the second half of the 1960s, and despite the slump in 1971 and 1972 there appears to be a recovery in 1973. A feature in Western Australia is the high proportional share of housing finance provided by the building societies.
9. The economic outlook in 1973 is optimistic for recovery. The general picture of economic indicators is for expansion, and a fall in the rate of unemployment of the workforce. The current outlook for marketing of overseas exports, such as minerals, wheat and wool is good, although recurring international monetary crises could disrupt external markets for primary products. There is still a large number of planned major projects, which could mean a resumption of boom conditions in the rest of the 1970s. As in the second half of the 1960s, the mining sector is likely to be the leading one in the promotion of economic growth. Significant new discoveries of mineral deposits are still being made in Western Australia.

# LIST OF SPECIAL ARTICLES AND MISCELLANEOUS MATTER CONTAINED IN PREVIOUS ISSUES (a)

This list refers to special articles and other more or less important miscellaneous matter which have appeared in previous issues of the Year Book but which are not included, or are included in an abbreviated form only, in the present issue. Owing to considerations of space, the deletions are necessary to make room for new material and the list will be revised each year to provide readers with a cumulative index of special articles or topics. In cases where an article was published in more than one previous issue, the reference to its last appearance only is given, as earlier references can be traced back in the List of Special Articles in the 1969 or 1970 Year Book.

Article or Topic	Year Book
Albany, Port of ....	1971, pp. 449-51
Basic wage, historical summary—	
Commonwealth ....	1968, pp. 396-401
State ....	1968, pp. 403-5
Censuses of population and housing, 1911 to 1966 ....	1972, pp. 547-70
Computer Service Centre, Perth ....	1969, p. 504
Conservation of the flora ....	1970, pp. 59-61
Cyclones, tropical ....	1969, pp. 43-50
Education Department, history of ....	1972, pp. 117-21
Electoral Divisions (Commonwealth) ....	1971, pp. 97-8
Electoral Divisions (Commonwealth), origin of names of ....	1970, p. 530
Electoral Provinces and Electoral Districts (State) ....	1969, pp. 102-3
Export price index ....	1970, p. 507
Flora of Western Australia—	
Acacia ....	1965, pp. 59-60
'Christmas tree' ( <i>Nuytsia floribunda</i> ) ....	1962, p. 51
Economic value of the flora ....	1968, pp. 54-5
Orchids ....	1968, pp. 48-9
Rutaceae family in Western Australia ....	1972, pp. 53-5
Special features of the flora ....	1962, pp. 51-2
Fremantle, Port of ....	1970, pp. 441-3
Geraldton, Port of ....	1972, pp. 447-9
Governors and Administrators of Western Australia—	
1828 to 1951 ....	1957, p. 65
1901 to 1959 ....	1960, p. 81
1901 to 1963 ....	1968, p. 89
Governor Stirling's Commission dated 4 March 1831, text of ....	1965, pp. 452-4
Historical review—chronological notes from 1829 ....	1967, pp. 2-33
Integrated Economic Censuses, 1968-69 ....	1971, pp. 552-64
Labour Force Survey ....	1971, pp. 508-10
Land—methods of alienation ....	1969, pp. 276-8
Land—methods of leasing ....	1969, pp. 278-83
Land settlement schemes, government ....	1968, pp. 244-6
Land tenure system, origin and development of ....	1960, pp. 198-9
Legislation, summary of—	
1957 and 1958 ....	1960, pp. 87-9
1959 and 1960 ....	1962, pp. 89-96
1961 and 1962 ....	1964, pp. 104-11
1963 and 1964 ....	1965, pp. 107-14
1965 ....	1967, pp. 111-15
1966 ....	1968, pp. 99-106
1967 ....	1969, pp. 108-15
1968 ....	1970, pp. 111-17
1969 ....	1971, pp. 105-8
Local government in Western Australia, development of ....	1971, pp. 565-70

# LIST OF SPECIAL ARTICLES AND MISCELLANEOUS MATTER CONTAINED IN PREVIOUS ISSUES (a)—*continued*

Article or Topic	Year Book
McNess Housing Trust ....	1969, p. 205
Meteorological services—	
History of ....	1960, pp. 34-5
Provision of ....	1966, pp. 46-7
Metric conversion for Australia ....	1972, pp. 571-4
Overseas arrivals and departures ....	1971, pp. 145-6
Parliamentary procedure and administrative machinery ....	1970, pp. 106-9
Pesticides, effect on beneficial forms of life ....	1969, pp. 90-1
Pesticides, use of in Western Australia ....	1971, pp. 87-90
Poisonous plants of Western Australia ....	1970, pp. 56-9
Population in local government areas ....	1972, pp. 542-3
Principal events of 1970 ....	1971, p. 571
Public Works Department, history of ....	1971, pp. 116-19
Railways—	
Origin and development ....	1968, pp. 360-1
Private ....	1965, p. 365
Timber ....	1968, pp. 363-4
Rainfall in agricultural areas, 1969 ....	1970, p. 529
Sporting organisations ....	1970, pp. 196-200
State Government Departments, functions of ....	1972, pp. 108-16
Tornadoes ....	1970, pp. 48-51
Trade, historical summary of ....	1967, pp. 346-7
University—principal benefactions ....	1969, p. 173
Use of pesticides in Western Australia ....	1971, pp. 87-90
Wheat, development of production ....	1968, p. 270

(a) Commencing with New Series: No. 1—1957.

## LIST OF MAPS CONTAINED IN PREVIOUS ISSUES (a)

Map (b)	Year Book
Air routes at 31 December 1956 ....	1957, p. 289
Air routes at 30 June 1969 ....	1970, <i>between</i> p. 448 and p. 449
Areas of current development ....	1970, <i>facing</i> p. 336
Electoral Divisions (Commonwealth) ....	1971, <i>between</i> p. 96 and p. 97
Electoral Provinces and Electoral Districts (State) ....	1969, <i>between</i> p. 96 and p. 97
Electricity supplies ....	1967, <i>facing</i> p. 320
Epcentres of large earthquakes ....	1971, p. 33
Perth Statistical Division ....	1968, <i>facing</i> p. 112
Port of Fremantle (Outer and Inner Harbour) ....	1970, <i>facing</i> p. 448
Production, main areas of ....	1957, p. 73
Railways and road services—routes operated ....	1967, <i>facing</i> p. 384
Railways road services—routes operated ....	1964, p. 354
Rainfall ....	1969 <i>facing</i> p. 32
Rainfall in agricultural areas, 1969 ....	1970, p. 529
Roads, main and important secondary ....	1968, <i>facing</i> p. 368
Vegetation Provinces ....	1968, p. 51

(a) Commencing with New Series: No. 1—1957

(b) All maps listed refer to Western Australia.

## NOTE ON STATISTICAL DIVISIONS

Western Australia is divided into a number of municipal districts for the purposes of local government administration. At 31 December 1970 there were 140 such districts, which are used as the basis of presentation of data derived not only from the population census but also from many of the regular statistical collections. Information presented in this way is valuable when considering activities in particular local government areas but is often more detailed than is required for a broader geographical assessment. For this reason, the municipal districts are combined into Statistical Divisions which provide significant areas for the publication of statistics in a convenient and readily appreciable summary form.

The partition of the Australian States into Statistical Divisions originated from a resolution of a conference of 1928 between the Federal Health Council of Australia and the Statisticians of the Commonwealth and the States concerning the need for the delineation of areas appropriate for the purposes of statistical tabulation. They first became operative in 1929 after consultation between the Commonwealth Statistician, the Statisticians of the States in collaboration with the State health authorities, and the Commonwealth Department of Health. Although Statistical Divisions were devised initially for use in the compilation and presentation of vital statistics, the advantages of extending the system to other fields of statistical investigation were recognised at once and it soon came to have general application in cases where consideration of geographic areas was relevant.

The Statistical Divisions of Western Australia and their component local government areas at 31 December 1970 are listed on the following pages and are shown on the map of the State inside the back cover. The population of each Division as recorded at each of the five most recent Population Censuses is shown in the following table. The areas of the Divisions at 30 June 1972 are also given.

STATISTICAL DIVISIONS—POPULATION (a) AND AREA

Statistical Division	Population at Census of 30 June—					Area at 30 June 1972
	1947	1954	1961	1966	1971 (b)	
	persons	persons	persons	persons	persons	square miles
Perth ....	302,968	395,049	475,398	559,298	703,199	2,073
South-West ....	51,973	68,553	71,637	72,983	77,347	11,031
Southern Agricultural ....	24,948	36,125	41,623	44,808	45,281	22,046
Central Agricultural ....	43,790	55,924	57,594	58,820	53,661	30,270
Northern Agricultural ....	24,665	32,068	35,785	38,817	42,804	32,041
Eastern Goldfields ....	37,722	34,578	34,142	35,062	42,769	249,013
Central ....	6,370	4,794	3,959	4,620	7,420	216,708
North-West ....	2,638	4,220	4,563	9,046	11,784	} 250,016
Pilbara ....	1,651	2,650	3,243	8,907	28,985	
Kimberley ....	2,774	3,543	5,668	12,700	14,602	162,723
Migratory (c) ....	2,981	2,267	3,017	3,039	2,617	....
WHOLE STATE ....	502,480	639,771	736,629	848,100	1,030,469	975,920

(a) Figures for 30 June 1961 and earlier exclude full-blood Aborigines; those for 1966 and 1971 refer to total population (i.e. including Aborigines). See NOTE on page 122. (b) Figures revised in accordance with the final results of the Census. (c) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left an Australian port before Census night for a next port of call in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

# LIST OF STATISTICAL DIVISIONS

with component Local Government Areas at 31 December 1970  
(See also page 118)

**PERTH****Cities**

FREMANTLE  
MELVILLE  
NEDLANDS  
PERTH  
SOUTH PERTH  
SUBIACO

**Towns**

CLAREMONT  
COTTESLOE  
EAST FREMANTLE  
MOSMAN PARK

**Shires**

Armadale-Kelmscott  
Bassendean  
Bayswater  
Belmont  
Canning  
Cockburn  
Gosnells  
Kalamunda  
Kwinana  
Mundaring  
Peppermint Grove  
Perth  
Rockingham  
Serpentine-Jarrahdale  
Swan  
Wanneroo

**SOUTH-WEST****Town**

BUNBURY

**Shires**

Augusta-Margaret River  
Boddington  
Boyup Brook  
Bridgetown-Greenbushes  
Busselton  
Capel  
Collie  
Dardanup  
Donnybrook-Balingup  
Harvey  
Mandurah  
Manjimup  
Murray  
Nannup  
Waroona

**CENTRAL AGRICULTURAL****Towns**

NARROGIN  
NORTHAM

**Shires**

Beverley  
Brookton  
Bruce Rock  
Corrigin  
Cuballing  
Cunderdin  
Dowerin  
Goomalling  
Kellerberrin  
Kondinin  
Koorda  
Kulin  
Merredin  
Mount Marshall  
Mukinbudin  
Narembene  
Narrogin  
Northam  
Nungarin  
Pingelly  
Quairading  
Tammin  
Toodyay  
Trayning  
Wandering  
Westonia  
Wickepin  
Williams  
Wyalkatchem  
York

**EASTERN GOLDFIELDS****Town**

KALGOORLIE

**Shires**

Boulder  
Coolgardie  
Dundas  
Esperance  
Laverton  
Leonora  
Menzies  
Ravensthorpe  
Yilgarn

**CENTRAL****Shires**

Cue  
Meekatharra  
Mount Magnet  
Murchison  
Sandstone  
Wiluna  
Yalgoo

**NORTH-WEST****Shires**

Ashburton  
Carnarvon  
Exmouth  
Shark Bay  
Upper Gascoyne

**NORTHERN AGRICULTURAL****Town**

GERALDTON

**Shires**

Carnamah  
Chapman Valley  
Chittering  
Coorow  
Dalwallinu  
Dandaragan  
Gingin  
Greenough  
Irwin  
Mingenew  
Moora  
Morawa  
Mullewa  
Northampton  
Perenjori  
Three Springs  
Victoria Plains  
Wongan-Ballidu

**PILBARA****Shires**

Marble Bar  
Nullagine  
Port Hedland  
Roebourne  
Tableland

**SOUTHERN AGRICULTURAL****Town**

ALBANY

**Shires**

Albany  
Broomehill  
Cranbrook  
Denmark  
Dumbleyung  
Gnowangerup  
Katanning  
Kojonup  
Lake Grace  
Nyabing-Pingrup  
Plantagenet  
Tambellup  
Wagin  
West Arthur  
Woodanilling

**KIMBERLEY****Shires**

Broome  
Halls Creek  
West Kimberley  
Wyndham-East Kimberley

## LIST OF LOCAL GOVERNMENT AREAS

at 31 December 1970

(See also page 118)

Local government area	City (C) Town (T) Shire (S)	Statistical Division in which situated	Local government area	City (C) Town (T) Shire (S)	Statistical Division in which situated
ALBANY ....	T.	Southern Agricultural	Marble Bar ....	S.	Pilbara
Albany ....	S.	Southern Agricultural	Meekatharra ....	S.	Central
Armada-Kelmscott ....	S.	Perth	MELVILLE ....	C.	Perth
Ashburton ....	S.	North-West	Menzies ....	S.	Eastern Goldfields
Augusta-Margaret River ....	S.	South-West	Merredin ....	S.	Central Agricultural
Bassendean ....	S.	Perth	Mingenew ....	S.	Northern Agricultural
Bayswater ....	S.	Perth	Moora ....	S.	Northern Agricultural
Belmont ....	S.	Perth	Morawa ....	T.	Perth
Beverley ....	S.	Central Agricultural	MOSMAN PARK ....	S.	Central
Boddington ....	S.	South-West	Mount Magnet ....	S.	Central Agricultural
Boulder ....	S.	Eastern Goldfields	Mount Marshall ....	S.	Central Agricultural
Boyp Brook ....	S.	South-West	Mukinbudin ....	S.	Central Agricultural
Bridgetown-Greenbushes ....	S.	South-West	Mullewa ....	S.	Northern Agricultural
Brookton ....	S.	Central Agricultural	Mundaring ....	S.	Perth
Broome ....	S.	Kimberley	Murchison ....	S.	Central
Broomehill ....	S.	Southern Agricultural	Murray ....	S.	South-West
Bruee Rock ....	S.	Central Agricultural	Nannup ....	S.	South-West
BUNBURY ....	T.	South-West	Naremburn ....	S.	Central Agricultural
Busselton ....	S.	South-West	NARROGIN ....	T.	Central Agricultural
Canning ....	S.	Perth	Narrogin ....	S.	Central Agricultural
Capel ....	S.	South-West	NEDLANDS ....	C.	Perth
Carnamah ....	S.	Northern Agricultural	NORTHAM ....	T.	Central Agricultural
Carnarvon ....	S.	North-West	Northam ....	S.	Central Agricultural
Chapman Valley ....	S.	Northern Agricultural	Northampton ....	S.	Northern Agricultural
Chittering ....	S.	Northern Agricultural	Nullagine ....	S.	Pilbara
CLAREMONT ....	T.	Perth	Nungarin ....	S.	Central Agricultural
Cockburn ....	S.	Perth	Nyabing-Pingrup ....	S.	Southern Agricultural
Collie ....	S.	South-West	Peppermint Grove ....	S.	Perth
Coolgardie ....	S.	Eastern Goldfields	Perenjori ....	S.	Northern Agricultural
Coorow ....	S.	Northern Agricultural	PERTH ....	C.	Perth
Corrigin ....	S.	Central Agricultural	Perth ....	S.	Perth
COTTESLOE ....	T.	Perth	Pingelly ....	S.	Central Agricultural
Cranbrook ....	S.	Southern Agricultural	Plantagenet ....	S.	Southern Agricultural
Cuballing ....	S.	Central Agricultural	Port Hedland ....	S.	Pilbara
Cue ....	S.	Central	Quairading ....	S.	Central Agricultural
Cunderdin ....	S.	Central Agricultural	Ravensthorpe ....	S.	Eastern Goldfields
Dalwallinu ....	S.	Northern Agricultural	Rockingham ....	S.	Perth
Dandaragan ....	S.	South-West	Roebourne ....	S.	Pilbara
Dardanup ....	S.	Southern Agricultural	Sandstone ....	S.	Central
Denmark ....	S.	South-West	Serpentine-Jarrahdale ....	S.	Perth
Donnybrook-Balingup ....	S.	Central Agricultural	Shark Bay ....	S.	North-West
Dowerin ....	S.	Southern Agricultural	SOUTH PERTH ....	C.	Perth
Dumbleyung ....	S.	Eastern Goldfields	SUBIACO ....	C.	Perth
Dundas ....	S.	Eastern Goldfields	Swan ....	S.	Perth
EAST FREMANTLE ....	T.	Perth	Tableland ....	S.	Pilbara
Esperance ....	S.	Eastern Goldfields	Tambellup ....	S.	Southern Agricultural
Exmouth ....	S.	North-West	Tammin ....	S.	Central Agricultural
FREMANTLE ....	C.	Perth	Three Springs ....	S.	Northern Agricultural
GERALDTON ....	T.	Northern Agricultural	Toodyay ....	S.	Central Agricultural
Gingin ....	S.	Northern Agricultural	Trayning ....	S.	Central Agricultural
Gnowangerup ....	S.	Southern Agricultural	Upper Gascoyne ....	S.	North-West
Goomalling ....	S.	Central Agricultural	Victoria Plains ....	S.	Northern Agricultural
Gosnells ....	S.	Perth	Wagin ....	S.	Southern Agricultural
Greenough ....	S.	Northern Agricultural	Wandering ....	S.	Central Agricultural
Halls Creek ....	S.	Kimberley	Wanneroo ....	S.	Perth
Harvey ....	S.	South-West	Waroona ....	S.	South-West
Irwin ....	S.	Northern Agricultural	West Arthur ....	S.	Southern Agricultural
Kalamunda ....	S.	Perth	West Kimberley ....	S.	Kimberley
KALGOORLIE ....	T.	Eastern Goldfields	Wickiepin ....	S.	Central Agricultural
Katanning ....	S.	Southern Agricultural	Williams ....	S.	Central Agricultural
Kellerberrin ....	S.	Central Agricultural	Willuna ....	S.	Central
Kojonup ....	S.	Southern Agricultural	Wongan-Ballidu ....	S.	Northern Agricultural
Kondinin ....	S.	Central Agricultural	Woodanilling ....	S.	Southern Agricultural
Koorda ....	S.	Central Agricultural	Wyalkatchem ....	S.	Central Agricultural
Kulin ....	S.	Central Agricultural	Wyndham-East Kimberley ....	S.	Kimberley
Kwinana ....	S.	Perth	Yalgoo ....	S.	Central
Lake Grace ....	S.	Southern Agricultural	Yilgarn ....	S.	Eastern Goldfields
Laverton ....	S.	Eastern Goldfields	York ....	S.	Central Agricultural
Leonora ....	S.	Eastern Goldfields			
Mandurah ....	S.	South-West			
Manjimup ....	S.	South-West			

# INDEX

Information on the same subject appearing on succeeding pages, whether in letterpress, tabular or diagrammatic form, has generally been indexed only to the first of such pages.

	Page
<b>A</b>	
'A' Series Retail Price Index ....	509, 511
Aboriginal, Aborigines ....	1, 102, 105, 111, 122, 123, 135, 136, 137, 139
education ....	168, 170
legislation ....	122, 123, 138
population ....	122, 123, 135, 136, 137
age distribution....	137
voting rights ....	102, 105
Abrolhos Islands ....	71, 80, 331, 380
Accidents	
aircraft ....	462
deaths from ....	148, 458, 459
industrial ....	492, 493, 494
road traffic ....	458
Acclimatisation Board ....	73
Administration	
Commonwealth ....	100, 108, 542
State ....	100, 110, 112
Administrator, Administrators	
of the Commonwealth ....	101
Western Australia ....	101
Adoption of children ....	110, 250
Adult Education	
Board ....	180
Extension Committee ....	180
Advisory Council, Apprenticeship	478
Aerated waters ....	408, 409
Aerial medical services ....	203
Age, ages	
of bridegrooms and brides ....	156, 157
parties of marriages dissolved ....	160
population ....	124, 497, 498, 544, 546
pupils at schools ....	162, 164, 165
pensions, pensioners ....	233, 247, 251, 268, 269, 522, 523, 539, 555
Aged persons, care of ....	206, 207, 210
Aged Persons Homes Grants ....	206, 207, 210
Agent General, London ....	117
Agricultural	
advisory services ....	373
areas, definition of ....	358
Bank of Western Australia ....	8, 10, 282, 291
College, Muresk ....	168, 173, 281, 372
education ....	168
employment ....	502, 504, 558
entomology ....	87, 372
land purchase— <i>see also</i> Land ....	310, 311
machinery ....	333, 418, 419, 421, 422, 423, 437
produce, bushel weights ....	340
production ....	329, 533
research ....	191, 192, 324, 343, 371
seasonal calendar ....	340
water supply ....	315, 317

	Page
Agriculture— <i>see also specific crops</i>	279, 329, 341, 533, 539
Bureau of ....	8
Department of ....	10, 311, 321, 324, 349, 365, 371
employment in ....	502, 504, 558
Institute of ....	192
Protection Board ....	274, 283, 372, 374
tropical ....	323, 331, 373
value of production ....	330, 337, 339, 535, 539
Air	
pressures ....	36
transport ....	460, 463
Albany Port Authority ....	441, 572
Alcoholic beverages	
excise ....	429
exports ....	427
imports ....	418, 419, 420
production ....	330, 339, 356
retail sales ....	433, 436
ships' stores ....	427
wholesale sales ....	435, 438
Ale— <i>see</i> Alcoholic beverages	
Alienation of Crown lands ....	310, 312, 314, 532
Altitude of climatological stations ....	37, 51
Alumina ....	29, 110, 321, 385
Aluminium ....	29
Alunite ....	18, 30
Antimonial concentrates ....	395
Anzaas Congress ....	562
Apiculture— <i>see</i> Bee keeping	
Appendix ....	540
Apple, apples ....	331, 338, 340, 341, 353
area ....	339, 353
exports ....	354, 421, 422, 425, 427
production ....	339, 340, 353
Apprenticeship, apprenticeships....	478
Advisory Council ....	478
registrations ....	479, 480
Apricots ....	340, 341, 353, 355
Arbitration authorities	
Commonwealth ....	475
State ....	475, 490
Area, areas	
agricultural, definition of ....	358
irrigated ....	321, 323, 325, 539
local government— <i>see also map in-</i> <i>side back cover</i> ....	118
metropolitan ....	130, 134, 483, 484
Metropolitan Traffic ....	285, 452, 453, 455, 458, 463, 464
north of 26°S. latitude ....	134
of Australia ....	135, 539
crops— <i>see also specific crops</i>	331, 332, 334, 533, 539

	<i>Page</i>		<i>Page</i>
<b>Area, areas—continued</b>		Bananas	323, 331, 338, 340, 341, 355, 356, 357
of Crown lands	312, 532	Bank, banks	291, 524
rural holdings	331, 332, 333, 334, 345, 359, 363, 366, 368, 539	advances	292, 524
South-West Land Division	134	Agricultural, of Western Australia	8, 10, 282, 291
States and Territories	135, 539	charges	294
Statistical Divisions	134, 135	Commonwealth, of Australia	291
Western Australia	29, 135, 539	Commonwealth Development, of	291
pastoral, definition of	357	Australia	291
statistical— <i>see</i> Statistical Divisions		Commonwealth Savings, of Australia	291, 294, 295
under pasture	331, 332, 334, 348, 539	Commonwealth Trading, of Australia	290, 291
unincorporated	118	debts to customers' accounts	294, 524
Argentine ants	92, 374	deposits	292, 295, 524, 539
Arrivals— <i>see</i> Migration		employment	505
Arsenious oxide	395	exchange rates	294
Art Gallery	189	interest rates	296
Artesian water supplies	19, 23, 27, 33, 98, 316, 317, 321	Reserve, of Australia	291
Articles in previous Year Books	572	Rural and Industries, of Western Australia	283, 291, 292, 294, 295
Artificial		savings	291, 294, 295, 524, 539
Breeding Board	375	trading	291, 524
fertilisers— <i>see</i> Fertilisers, artificial		Banking	
insemination of cattle	375	Corporation, Commonwealth	291
Asbestos	23, 33, 386	employment	505
Assembly, Legislative	9, 100, 103, 107, 108, 109	institutions, Commonwealth	291
Assistance to		Bankruptcy	255, 304
education	161, 174, 178, 181, 267, 277, 278, 280, 281	Bark, tannin	378
gold mining	386, 387, 534	Barley	
indigent and distressed persons	247	area	339, 346, 349, 533, 539
industry	281, 387, 411	exports	346, 421, 422, 425, 427
Institute of Technology	174	Marketing Board, Western Australian	346
primary producers	291, 343, 350, 365, 370	production	330, 339, 340, 346, 533
schools	161	Barytes	386, 395
universities	178, 181, 184, 267, 277, 278, 281	Basalt	28, 31, 33
Associateships conferred, Institute of Technology	174	Basic wage, wages	483, 538
Assurance, life— <i>see</i> Insurance, life		definition of	485
Atmospheric pressure	36	fixation	475, 483
Auction sales, wool	361	history	483
Auriferous ores— <i>see also</i> Gold; Gold-fields	21, 395	loadings	486, 487
Australia		margins	483, 486, 487
area of	135	rates	483, 484, 485, 486, 538
Commonwealth of	100	Batteries	
High Court of	253, 475	electrical	419
Australian		gold	192
Broadcasting		Bauxite	14, 29, 33, 276, 386, 387, 395, 539, 566
Commission	167, 470	Beach sands, mineral	33, 329, 385, 386, 389, 390
Control Board	469	Beans	323, 331, 338, 340, 352, 374
Constitution	100, 101, 122, 123, 252	Beds in hospitals	204, 206
Labor Party	15, 102, 106, 107, 108	Bee keeping	338, 339, 370, 379, 535
life tables	155	Beef	
Loan Council	265	cattle	362
population at censuses	122	roads	283
primary production	339	exports	421, 422, 425, 427, 527
Universities Commission	182	retail prices	512
Wheat Board	343, 344	Beer— <i>see</i> Alcoholic beverages	
Awards, industrial	475, 478, 479, 480, 486, 487	Bees-wax	371
incidence of	480	Beetroot	352
<b>B</b>		Benefits	
Baby health centres	202	friendly societies	299
Bacon, ham		funeral	234, 268, 299, 522
factories	408	hospital, medical and pharmaceutical	241, 268, 522
production	369, 408, 409, 536	repatriation	238, 523
retail price	512	social services	232, 251, 268, 269, 522, 523

	Page		Page
Benefits— <i>continued</i>		<b>C</b>	
unemployment, sickness and special	232,	'C' Series Retail Price Index	511
235, 268, 522, 523, 538		Cabbages	353
workers' compensation	492	Cabinet, Cabinets	101, 103, 104
Bentonite	395	Cable communication	468
Beryl, beryllium	21, 33, 331, 386	Caesium	395
Betting	309	Cancer	201
Tax	272, 276, 309	Capital cities	130, 441, 510, 511, 512, 514, 515, 516
Birds	63, 70	Cargo, shipping	441, 442, 445, 539
Birth, births	140, 519, 539	Carrots	352
ex-nuptial	141, 142	Cases tried in	
maternity allowances for	236, 268, 522	higher courts	255, 256, 258
multiple	141	Magistrates' courts	256, 258
Perth Statistical Division	141	Cattle	329, 330, 331, 334, 335, 336, 358, 362, 365, 448, 528, 539
rates	144, 154, 519	beef	362
registration of	140, 539	dairy	362
stillbirths	141, 152	exports	421, 422, 423, 528
Birthplaces of population	127, 545	for meat production	334, 335, 336, 362, 363, 369
Bismuth concentrates	395	milk production	334, 335, 336, 362, 366, 367
Blind, pensions for the	232	herds, size of	336, 364, 366, 367
Blue		research	374
Books (colonial)	iii, 330, 509	slaughtered	339, 364, 365
bush	62	slaughter levy	269
Board— <i>see specific Boards</i>		Cauliflowers	338, 352, 353
Boarded-out children	249	Causes of death	147, 151
Books, Blue (colonial)	iii, 330, 509	Caves	28, 198
Boots and shoes— <i>see also Footwear</i>	409	Cement	407
Botanic Garden	196	Census of retail establishments	384, 400, 430
Bran	408, 409	Censuses of population	122, 123, 124, 493, 503, 543, 544, 545, 546, 547, 548, 549, 550, 560, 561
Bread		Aborigines	122, 123, 135, 136, 137, 139
production	409	age	124, 497, 498, 543, 544, 546
retail price	512	birthplace	127, 545
Bricks, brickworks	407, 409, 536	density	130, 134
Bridegrooms		expectation of life	155
ages of	156, 157	geographical distribution	130
conjugal condition of	157	industry	128, 499, 500, 501, 502, 558
Brides		intercensal increase	129, 133, 545, 546, 547
ages of	156, 157	marital status	128, 497, 498, 546
conjugal condition of	157	masculinity	123, 124, 133
Bridges	285	migration	129, 130, 131, 132, 133
Broadcasting, wireless	167, 469	nationality	127, 545
Building, buildings		occupation	128, 503, 560
control	226	occupational status	128, 496, 499, 557
employment in	230, 499, 500, 501, 502, 558	population of	
factory, value of	399	cities	130
materials index	512, 513, 514, 515	Statistical Divisions	130, 132, 134, 135, 574
operations	227, 537, 539, 569	towns	130
societies	222, 225, 300	urban centres	130, 131, 547, 549
stone	33, 386, 395	religions	128, 546
Bulk handling of grain	342	rural population	130, 131, 547, 549
Bullion, gold	421, 422, 423, 530	urban population	130, 131, 547, 549
silver	421, 422	work force	495, 502, 503, 557
Bunbury Port Authority	441	Central Road Trust Fund	284
Bureau of Agriculture	8	Cereals— <i>see specific cereals</i>	
Bursaries, scholarships	161, 177, 182	Cerium	395
Buses		Charitable institutions	206, 250, 283
motor	280, 447, 453, 456, 457, 463	Cheese	330, 365, 408, 409, 512
registrations	453, 526	Chemical fertilisers— <i>see Fertilisers</i>	
trolley	456, 457	artificial	
Bush Fires Board	264	Cheque-paying banks— <i>see Bank, banks</i>	
Bushel weights	340		
Butter			
exports	528		
factories	365, 408		
marketing	365		
production	330, 408, 409, 536, 539		
retail price	512		

- |  | <i>Page</i>   |                                      | <i>Page</i>                                 |
|--|---|--------------------------------------|---|
| Cherries                                       | 341, 353, 355   | Commission— <i>see also</i> Royal    |   |
| Chest  |   | Broadcasting, Australian             | 167, 470                                    |
| clinics  | 202   | Conciliation and Arbitration, Com-   |   |
| Hospital, Perth                                | 205   | monwealth                            | 475, 479, 483, 486, 487, 490, 491           |
| Chief Justice                                  | 101, 116  | Electricity, State                   | 112, 280, 283, 403, 409, 410                |
| Child— <i>see also</i> Juvenile                |   | Grants, Commonwealth                 | 266   |
| endowment                                      | 232, 237, 250, 268, 269, 522, 523                     | Housing, State                       | 220, 280, 283                               |
| health centres                                 | 202   | Industrial, Western Australian       | 475, 478, 479, 483, 486, 487                |
| welfare  | 111, 246, 248   | Lotteries                            | 250, 307                                    |
| institutions                                   | 111, 250  | National Debt                        | 265, 281                                    |
| Children, children's                           |   | Overseas Telecommunications          | 468   |
| adoption of                                    | 110, 250  | Universities, Australian             | 182   |
| boarded-out                                    | 249   | Whaling, International               | 382   |
| courts   | 248, 254  | Commissioner, Commissioners          |   |
| employment of                                  | 250   | Conciliation                         | 475   |
| endowed  | 237, 523  | Electoral                            | 110, 541                                    |
| handicapped                                    | 167, 209  | Industrial                           | 475, 476                                    |
| benefit  | 242, 246  | of Main Roads                        | 451, 452, 456                               |
| health services for                            | 202, 244, 268   | Police                               | 259, 285, 455, 456, 464                     |
| in institutions                                | 250   | Public Health                        | 200, 201                                    |
| maintenance of                                 | 249, 251  | Rural and Industries Bank            | 291   |
| neglected                                      | 248   | Transport                            | 273, 463                                    |
| school   | 162, 244, 296, 496                                    | Town Planning                        | 227   |
| Chronological notes from 1829                  | 572   | Commonwealth                         |   |
| Churches— <i>see</i> Religion of population    |   | Aid (roads)                          | 267, 283, 455                               |
| Cigarettes, cigars— <i>see</i> Tobacco         |   | Bank of Australia                    | 291   |
| Cities— <i>see also</i> map inside back cover  | 117, 118, 130, 440, 510, 511, 512, 514, 515, 516      | Banking Corporation                  | 291   |
| Citrus fruits— <i>see also</i> specific fruits | 330, 353, 354, 357                                    | Basic Wage                           | 483   |
| Civil Aviation, Department of                  | 460   | Conciliation and Arbitration Com-    | 475, 479, 483, 486, 487, 490, 491           |
| Clays  | 33, 386   | Commission                           | 100, 101, 122, 123, 252                     |
| Climate  | 29, 36, 49, 51, 55, 56, 59, 63                        | Constitution                         | 475, 490                                    |
| Climatological stations                        | 37, 43, 51  | Court of Conciliation and Arbitra-   | 291   |
| Clothing                                       |   | tion                                 | 103, 572                                    |
| factories                                      | 403, 404, 405, 406                                    | Development Bank of Australia        | 507, 508                                    |
| imports  | 418, 419, 420   | Electoral Divisions                  | 266   |
| items of, production                           | 409   | Employment Service                   | 475   |
| retail sales                                   | 432, 433, 436   | Grants Commission                    | 100   |
| Clovers  | 192, 330, 340, 341, 348, 349, 359, 365, 374           | Industrial Court                     | 101, 108, 110                               |
| Coal   | 19, 23, 28, 31, 33, 191, 330, 386, 388, 395, 403, 539 | of Australia                         | 234, 268                                    |
| carried on railways                            | 448   | Parliament                           | 291, 294, 295                               |
| discovery                                      | 385, 388  | Rehabilitation Service               | 193, 324, 373, 382                          |
| excise on                                      | 429   | Savings Bank of Australia            | 290, 291                                    |
| Industry Tribunal, Western Aus-                |   | Scientific and Industrial Research   |   |
| tralian  | 476   | Organization                         | 193, 324, 373, 382                          |
| Mine Workers' Pensions Fund                    | 111, 289  | Trading Bank of Australia            | 290, 291                                    |
| mining leases                                  | 311   | Commonwealth-State                   |   |
| production                                     | 386, 388, 534, 539                                    | Financial Agreement                  | 265, 266, 267                               |
| value  | 386, 388, 534   | Housing Agreement                    | 221, 280, 283, 300                          |
| Coastal  |   | Communication                        | 465, 499, 500, 501, 502, 505, 559, 560, 568 |
| configuration                                  | 19  | Companies Registration Office        | 306   |
| Shipping Commission, Western                   |   | Compensation, workers                | 283, 297, 305, 491, 492                     |
| Australian                                     | 277   | Comprehensive Water Supply Scheme—   |   |
| Coastline, length of                           | 19, 65  | <i>see also</i> Water                | 317, 318                                    |
| Cobalt   | 393   | Computer Service Centre              | 572   |
| Cockburn Sound                                 | 65, 79, 80  | Conciliation and Arbitration         |   |
| Coinage  | 290   | Commission, Commonwealth             | 475, 479, 483, 486, 487, 490, 491           |
| College, colleges                              |   | Commonwealth Court of                | 475, 490                                    |
| Advanced education                             | 183, 539  | Concrete products                    | 407   |
| Agricultural                                   | 168, 173, 281, 372                                    | Confectionery                        | 418, 419, 423                               |
| Teachers                                       | 170, 183  | Congenital malformation, deaths from | 148, 151                                    |
| University                                     | 180   | Consolidated Revenue Fund            | 110, 181, 269, 274, 275, 520                |

	Page
Constitution	
Commonwealth	100, 101, 122, 123, 252
State	8, 100, 103, 105
Consular representatives	116, 541
Consumer Price Index	509, 537
Convictions, court	256
Convicts	5, 122, 329
Cook, James	2
Copper, copper ores	18, 23, 33, 192, 331, 374, 386, 387, 393, 395, 421, 422
Coral, corals	79, 80
reef	65, 79, 80
Coroners' Courts	254
Correspondence tuition	167, 170
Cotton	324, 338, 339, 340, 350, 421, 422, 423, 539
Council, Councils	
Cancer	201
Executive	101
Health Education	201
Legislative	5, 6, 9, 100, 103, 105, 109, 110, 541
Loan, Australian	265
Municipal— <i>see also</i> Municipalities	118
National Fitness	199
National Safety	260, 262
Privy	253
Trades and Labor, of Western Australia	477, 483, 491
Country Party	15, 102, 103, 104, 106, 107, 108
Court, Courts	
Appeal, Western Australian Industrial	476
Bankruptcy	255, 304
Children's	248, 254
Coroners'	254
District	253, 254
Full	253
High, of Australia	253, 475
Industrial, Commonwealth	475
Judges'	253, 255
civil cases	255
convictions	256, 258
Licensing	254
Local	254
Magistrates'	254
civil cases	255
convictions	256, 258
of Arbitration, Western Australian	475, 490
Conciliation and Arbitration, Commonwealth	475, 490
Petty Sessions	254
Session	254
Summary Relief	247, 253, 254
Supreme	116, 252, 253
Crayfish— <i>see</i> Rock lobsters	
Crime	255
Crops— <i>see also specific crops</i>	332, 334, 338, 339, 340, 341, 357, 533
Crown land— <i>see</i> Land	
Crown Law Department	252
Crown of Thorns starfish	79
Crude oil	385, 386, 393, 396, 539
Currants	330, 356
Currency	290

Customs	
collections	269, 428, 525
tariff	412, 428
Cycles, motor	453, 459, 460, 526
Cyclones	36, 52, 53

## D

Dairy	
cattle	362
produce	
retail prices of	512
products, marketing of	365
Dairying	10, 192, 329, 330, 337, 338, 339, 365, 535
Dale, Ensign	4
Dampier, William	2
Dams— <i>see</i> Reservoirs; Water	
Day care centres	250
Day hospitals	205
Death, deaths	140, 145, 287, 519, 539
benefits, State Housing Commission	225
causes	147, 151
infant	145, 148, 150, 519
rates	146, 458, 519
registration of	140, 539
road traffic accident	458, 459
Debt, public	265, 281, 521
Decentralisation, Department of Development and	411
Decimal currency	290
Degrees conferred, University	179
Democratic Labor Party	15
Demography	122, 140, 518
Density of population	122, 130, 134
Dental services	203
Department	
for Community Welfare	246, 248
of Development and Decentralisation	411
Departures— <i>see</i> Migration	
Deserted wives, assistance to	234, 247, 248
Development Bank of Australia, Commonwealth	291
Diabetes mellitus, deaths from	147, 149
Dingoes	68, 69, 374
Diphtheria	201, 202
Diplomas conferred, Institute of Technology	174
Direction of trade	415
Disabled Persons' Accommodation Grants	206, 208
Disabled persons, care of	206
Diseases	
deaths from	147, 151
infectious	201
notifiable	201
of early infancy, deaths from	151
venereal	202
Disputes, industrial	475, 481, 482, 538, 539
Distances between cities	441
District Court	116, 253, 254
Divorce, divorces	159, 255, 539
Dried fruits— <i>see</i> Fruits	
Drivers' and riders' licences, vehicle	260, 276, 452
Drunkenness	256, 257

	Page		Page
Duty, duties		Education— <i>continued</i>	
customs ....	269, 429, 525	school, schools— <i>continued</i>	
estate ....	269, 271	leaving age ....	162
excise ....	269, 429, 525	non-government ....	162, 164, 165, 171, 539
gift ....	269	age of pupils ....	162, 164, 165
probate and succession ....	271, 276	primary enrolments ....	162, 164
stamp ....	271, 276	secondary enrolments ....	162, 165
totalisator ....	272, 276, 309	sex of pupils ....	162
Dwellings		of Mines ....	173
class of ....	212, 551	the air ....	167, 203
completed ....	227, 231, 537	primary ....	161, 164, 165
construction, State Housing Com- mission ....	224	secondary ....	161, 165, 166, 171
facilities of ....	217, 553	teacher training ....	170
for age pensioners ....	210	technical ....	161, 168, 478, 479
geographical distribution of ....	218	Tertiary Education Commission ....	185
inmates ....	212, 213	University ....	11, 175, 180, 190, 281, 288, 375, 539, 562, 563
material of outer walls ....	215, 552	visual aids in ....	167
motor vehicles at ....	217, 553	vocational guidance ....	167, 168, 170
nature of occupancy ....	215, 552		
number of rooms ....	214, 551, 552	Egg, eggs	
occupied ....	211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 551	exports ....	370, 427
private ....	211, 218, 219, 220, 551, 552	Marketing Board, Western Aus- tralian ....	369
rent, rented ....	509	production ....	330, 370
sewage disposal, method of ....	553	retail price ....	512
unoccupied ....	211, 213, 218, 220, 551, 554		
		Elections	
<b>E</b>		Commonwealth ....	102, 108
Earnings ....	483	local government ....	119
weekly, average ....	488, 489, 490, 538	State ....	100, 105, 109
Earthquakes ....	32	Electoral	
Eastern Goldfields Transport Board ....	457	Commissioners ....	110, 541
Economy, West Australian, 1959 to 1973 ....	565	Divisions, Commonwealth ....	103, 572
Education ....	161	province or district ....	105, 106, 107, 108, 109, 110, 541
adult ....	180	provisions	
agricultural ....	168	Commonwealth ....	102
assistance to ....	161, 174, 178, 181, 267, 277, 278, 280, 281	local government ....	119
Council, Health ....	201	State ....	105, 108
Department 161, 162, 165, 188, 197, 478, 572		Electrical appliances and equipment	418, 419, 420
employment in ....	166, 169, 170, 174, 179, 505, 559, 568	Electricity	
examinations, public ....	165, 180	and gas census ....	409
expenditure on ....	174, 178, 181, 277, 279, 280, 283, 520	Commission, State ....	112, 280, 283, 403, 409, 410
Institute of Technology ....	112, 168, 172, 174, 185, 563	generation and transmission ....	409, 521
of handicapped children ....	167, 209	undertakings, local government	284, 286, 287
natives ....	168, 170	used in factories ....	403
Parents and Citizens' Associations ....	167	Electric motors ....	399
pre-school ....	171, 172	Employee organisations ....	477
provision for, in remote areas ....	167, 170	Employer organisations ....	476
scholarships and bursaries ....	161, 177, 182	Employers' Federation, Western Aus- tralian ....	476, 491
school, schools		Employment ....	495, 557
agricultural ....	168	Child Health Services ....	202
attendance, attendances at ....	162	classification by industry	499, 505, 558, 568
broadcasts to ....	167	estimates ....	503, 504, 505, 506, 568
correspondence ....	167, 170	government ....	506
enrolments ....	162, 164, 165, 539	in building ....	230, 499, 500, 501, 502, 558
government ....	161, 162, 164, 165, 279, 539	factories ....	330, 399, 402, 403, 411, 536
age of pupils ....	162, 164, 165	fishing ....	382, 383
primary enrolments ....	162, 164	hospitals ....	204, 206
secondary enrolments ....	162, 165	manufacturing ....	499, 500, 501, 502, 505, 558, 561, 568
sex of pupils ....	162	mineral exploration, private ....	396
		mining ....	384, 385
		Statistical Divisions ....	330

	Page		Page
Employment— <i>continued</i>		<b>F</b>	
teaching		Factory, factories— <i>see also specific types of factory</i>	
Institute of Technology ....	174	classification (ASIC) ....	400
school ....	166, 171	definition of, statistical ....	400
University ....	179	development of ....	398
transport ....	447, 457, 499, 500, 501, 502, 503, 505, 559, 560, 568	distribution of, geographical ....	330, 331, 403
labour force survey ....	503	employment ....	330, 399, 402, 403, 411, 536, 539
of children ....	250	engines used in ....	399
Postmaster-General's Department	465	land and buildings ....	399
Service, Commonwealth ....	507, 508	number of ....	398, 399, 400, 401, 402, 403, 407, 411, 536, 539
sheltered ....	208, 523	output, value of ....	401, 536
work force ....	495, 500, 501, 502, 503, 557	plant and machinery ....	399
Endowment, endowments		production	
child ....	232, 237, 250, 268, 269, 522, 523	items of ....	407, 408, 409, 536
Engineering works ....	407	net ....	399, 536
Engines in factories ....	399	purchases, transfers in ....	401, 402, 405
Enrolments		salaries and wages ....	402, 404, 411, 536, 539
Institute of Technology ....	175	sales, transfers out ....	401, 402, 404
school ....	162, 164, 165, 171	stocks ....	401, 402, 405
Teachers College ....	170	summary according to industry sub-	
technical education ....	169	division ....	403, 404, 405, 406
University ....	179	of Australian statistics ....	402, 539
Entomology— <i>see also</i> Insects	87, 194, 372	turnover ....	401, 402, 404
Environmental Protection, Department of	111	Farm, farms	
Equal pay ....	486	experiment, experimental ....	372
Esperance Port Authority ....	441, 444	Management Service Laboratory ....	375
Estate duty ....	269, 271	production— <i>see also</i> Agricultural; Agriculture; Farming; Primary	329, 532, 533, 535
Evaporation ....	48, 49	State ....	372
Examination, examinations		Farmers, assistance to	
dental, in schools ....	203	financial ....	291, 343, 350, 365, 370
medical		technical ....	365, 371
for venereal diseases ....	202	Farming	
in schools ....	203	bee— <i>see</i> Bee keeping	
of bankrupts ....	304	dairy ....	192, 329, 330, 331, 338, 339, 365, 535
Public ....	165, 180	ley ....	330
Board ....	180	pig ....	192, 330, 334, 367, 368, 448, 532
X-ray, for tuberculosis ....	202	poultry ....	192, 330, 334, 337, 338, 339, 369
Exchange rates ....	290	sheep ....	192, 329, 330, 331, 334, 358
Excise		wheat ....	192, 329, 330, 335, 341, 533
collections ....	269, 429, 525	Fauna ....	63, 81, 195, 197, 198
commodities subject to ....	429	Federation, Commonwealth ....	100
rates ....	429	Fellmongering— <i>see</i> Wool	
Executive Council ....	101	Felspar ....	331, 386
Ex-nuptial births ....	141, 142	Ferries ....	460
Expectation of life ....	155	Fertilisers, artificial	
Experiment, experimental farms	372	carried on railways ....	448
Exploration for minerals, private	395	factories ....	330, 407
expenditure ....	396, 397	imports ....	418, 420
petroleum ....	396, 397	production ....	393, 407
finance ....	397	ores used in ....	357, 386, 389
wells and footage drilled	397	use of ....	191, 349, 357, 374
Export		Fertility and reproduction rates....	145
charges, primary products ....	269	Festival of Perth ....	180
price index ....	572	Finance	
Exports— <i>see also specific items</i>		Commonwealth-State	221, 244, 265, 266, 267, 275, 283, 300, 317, 324, 455
classification ....	414	Companies ....	302
destination ....	416, 423, 424, 425	Esperance Port Authority ....	444, 445
items of, principal ....	421, 422, 423, 425, 526, 527, 528, 529, 530	Government pension and super-	
valuation of ....	413, 414, 539, 565	annuation schemes ....	288, 289
value ....	414, 415, 416, 417, 421, 422, 423, 424, 427, 428, 526, 527, 528, 529, 530, 531, 539, 565	hospitals ....	204, 206
External Trade— <i>see also</i> Direction of trade; Exports; Import, imports	412, 413, 426, 531		

	Page		Page
<b>Finance—continued</b>		<b>Forestry</b>	
local government ....	120, 284	employment in ....	502, 505, 558, 568
Lotteries Commission ....	307	production, value of ....	330, 338, 339, 535
private ....	290, 524	<b>Forrest</b>	
public ....	265, 520	Alexander ....	358
railways ....	446, 447, 521, 525	John ....	9, 10, 104, 562
research ....	184	<b>Fossils</b> ....	19, 29, 80
roads ....	267, 283, 284, 452, 455	<b>Foxes</b> ....	69, 374
Royal Flying Doctor Service ....	203	<b>Free milk for school children</b> ....	244, 268, 522
<b>Financial</b>		<b>Freight</b>	
Agreement, Commonwealth-State ....	265, 266, 267	air ....	460, 461
assistance grants ....	174, 178, 182, 206, 207, 210, 266, 267, 275, 324, 326	railway ....	447, 448, 449, 525
<b>Fire, fires</b>		road ....	447, 463
Brigades ....	111, 284, 286	sea-borne ....	441
Board, Western Australian ....	263, 297	<b>Fremantle, Charles H.</b> ....	3
insurance ....	296	<b>Fremantle Port Authority</b> ....	441, 444, 572
protection ....	263	<b>Friendly societies</b> ....	299
forest ....	378	<b>Frosts</b> ....	43
Firewood ....	378, 379, 448	<b>Fruit, fruits—see also specific fruits</b>	
<b>Fish—see also Rock lobsters (crayfish);</b>		canned	
<b>Fisheries, fishing</b>		charge ....	269
exports ....	380, 421, 422, 423, 424, 425, 427, 529	imports ....	418, 419
production ....	330, 339, 380, 381, 539	retail prices ....	512
species of ....	65, 66, 75, 380, 381	dried	
<b>Fisheries, fishing—see also Fish; Pearls,</b>		exports ....	356
<b>pearl-shell; Whales, whaling</b> ....	68, 69, 111, 330, 339, 380, 382	imports ....	419
employment in ....	382, 383	production ....	356
research ....	195, 382	fly eradication ....	274, 276
value of ....	330, 338, 339, 380, 381, 382, 383	fresh	
<b>Fitness Council, National</b> ....	199	carried on railways ....	448
<b>Flats</b> ....	211, 212, 213, 214, 215, 216, 217, 219, 220, 227, 228, 229, 230, 231, 537, 539	exports ....	354, 421, 422, 423, 425, 427, 528
<b>Flax</b> ....	349	imports ....	418, 419
<b>Flinders, Matthew</b> ....	2, 5	production ....	323, 330, 331, 353
<b>Flora—see also Forest, forests</b> ....	55, 196, 378	<b>Fuel oil—see Oil, oils</b>	
<b>Flour, wheaten</b>		<b>Fund—see specific funds</b>	
exports ....	341, 421, 422, 425, 427, 528	<b>Funeral benefits</b> ....	234, 268, 299, 522
milling ....	331		
production ....	407, 409, 536		
retail prices ....	512		
<b>Flying Doctor Service, Royal</b> ....	167, 203, 461, 463, 469		
<b>Fodder crops</b> ....	348, 349		
<b>Food and Agriculture Organization</b> ....	93		
<b>Foodstuffs—see also specific foodstuffs</b>			
exports ....	341, 421, 422, 423, 424, 425, 427, 527		
imports ....	418, 419, 420		
retail prices ....	512		
<b>Footwear</b> ....	409		
exports ....	421, 422, 423		
imports ....	418, 419, 420		
retail sales ....	433, 436		
<b>Forest, forests</b> ....	376		
administration and conservation ....	278, 283, 378		
fire protection ....	378		
products—see also specific products ....	329, 378, 379		
situation of ....	61, 376, 377, 378		
State ....	376, 377		
tenures ....	311		
tree species ....	56, 61, 99, 376, 378		
		<b>G</b>	
		<b>Gaols</b> ....	260
		<b>Gas</b>	
		and electricity census ....	409
		available through mains—see also	
		Natural gas ....	409, 410
		natural ....	16, 19, 23, 25, 28, 33, 385, 386, 393, 396, 397, 409, 410
		<b>Gauges, railway</b> ....	447, 448, 449, 450
		<b>General Agreement on Tariffs and Trade</b> ....	412
		<b>Geological events and mineral deposits</b> ....	33
		<b>Geology</b> ....	19, 30, 31, 97, 98
		<b>Geraldton Port Authority</b> ....	441, 444, 472
		<b>Gift duty</b> ....	269
		<b>Gold—see also Goldfields</b>	
		discovery ....	7, 16, 122, 329, 385, 386
		exploration ....	31, 395
		exports ....	421, 422, 423, 530
		mining	
		assistance to ....	386, 534
		employment in ....	385, 387
		leases ....	311
		production ....	7, 339, 385, 386, 387, 534, 539
		refined ....	386
		value ....	339, 385, 386, 534



	Page		Page
Import, imports— <i>see also specific items</i>		Interstate	
classification .....	414	air services ....	461
items of, principal ....	418, 419	cargo, shipping ....	442
origin .....	420	comparison	
valuation of ....	414, 415, 539	areas ....	135, 539
value .... 416, 417, 418, 419, 420, 426, 428,	539	average weekly earnings ....	488, 539
Income tax ....	269, 270	Consumer Price Index ....	510, 511
Indebtedness, public ....	265, 281, 521	factories ....	402, 539
Index numbers		home building activity ....	220, 231, 539
retail price ....	509, 511, 537	livestock numbers ....	369, 539
wholesale price ....	512, 516, 517, 518, 519	motor vehicle usage ....	457
Industrial		net production, manufacturing ....	399, 539
accidents ....	492, 493, 494	population 123, 129, 135, 136, 139, 539	
Appeal Court, Western Australian ....	476	primary production ....	339, 539
awards .... 475, 478, 479, 480, 486, 487		railways, government ....	449
incidence of ....	480	Retail Price Index variations ....	510, 511, 537
Commission, Western Australian ....	475, 478, 479, 483, 486, 487	weather ....	51, 539
conditions ....	475	wheat production ....	345
Court, Commonwealth ....	475	railways ....	440, 446, 449
Development		representation ....	117
Department of ....	411	shipping ....	442
history of ....	398	trade .... 415, 416, 417, 418, 419, 421, 422,	423, 426, 531
disputes ....	475, 481, 482, 538, 539	Invalid pensions, pensioners ....	232, 233, 251, 268, 522, 523, 539, 555
Industry		Investment societies ....	300
geographical distribution ....	330, 331, 403	Iron— <i>see also</i> Pig-iron	
of population 128, 499, 500, 501, 502, 558		ore 14, 16, 21, 23, 29, 31, 33, 34, 111, 321,	
work force 499, 500, 501, 502, 558		329, 331, 385, 386, 390, 395, 539, 565	
primary— <i>see also</i> Primary; Rural....	329, 331	exports 33, 331, 390, 391, 421, 422,	
secondary— <i>see also</i> Factory, factor-		423, 424, 425, 427, 530	
ies; Manufacturing ....	398	production 385, 386, 390, 391, 539, 566	
Inebriates ....	261	railways and ports ....	391, 446, 449
Infant		royalties ....	276
deaths ....	145, 148, 150, 519	pyrites ....	386, 393
mortality rate ....	150, 519	Irrigation ....	17, 194, 315, 321, 325, 365, 373
Infectious diseases			
cases notified ....	201		
deaths from ....	147		
Information service ....	iii		
Insects ....	56, 81, 87, 94		
Insolvencies ....	304		
Instalment credit for retail sales....	301, 302, 304, 539		
Institute			
of Agriculture ....	192		
Technology, The Western Aus-			
tralian .... 112, 168, 172, 174, 185, 563			
awards conferred ....	174		
finance ....	174		
Swan River Mechanics' ....	188		
Institutions, charitable ....	206, 250, 283		
of Child Welfare Department ....	250, 251		
Instruction, public— <i>see</i> Education			
Insurance			
employment in ....	500		
fire, marine and general ....	296, 524		
health, hospital ....	241, 243, 299		
life ....	297, 524		
Motor Vehicle, Third Party ....	111, 273, 276, 296, 298		
Office, State Government ....	279, 296		
of housing loans ....	225		
Integrated economic censuses ....	572		
Intercensal increases 129, 133, 545, 546, 547			
Interest rates, bank ....	296		
International Whaling Commission ....	382		

## J

Jam	
retail price ....	512
Jarraah ....	61, 64, 99, 194, 329, 376
Jelly crystals ....	409
Judges ....	105, 116, 253
Judges' courts ....	253, 255, 475
Judicature ....	116, 253
Jury, juries....	253
Justice— <i>see</i> Court, courts	
Juvenile— <i>see also</i> Child; Children, child-	
ren's	
convictions in courts ....	257
employment ....	250

## K

Kangaroo, kangaroos ....	67, 195, 376
Karri ....	61, 64, 99, 329, 376
Kimberley ....	17, 63, 64, 65, 66, 69, 88, 122,
329, 331, 357, 385, 386, 388, 390, 391, 456	
Research Station ....	195, 324, 373
Kindergartens ....	167, 171, 172

	<i>Page</i>
King, Philip P. ....	2
King's Park Board ....	198
Kwinana .... 280, 330, 343, 387, 390, 392, 393,	403, 407, 410, 449, 451
Kyanite ....	395

## L

Laboratories, State Government ....	191, 201
Labour— <i>see</i> Employment	
Labour force survey ....	503, 504, 572
Labour parties .... 10, 102, 103, 104, 106, 107, 108	
Lakes .... 17, 30, 66, 98, 393, 394	
Lamb— <i>see</i> Mutton, lamb	
Land	
and buildings, factory ....	399
Crown	
administration ....	310
alienation of .... 310, 312, 314,	532
classification of ....	311
grants ....	311
leases and licences .... 311, 532	
agricultural ....	310
mining ....	311
pastoral .... 311, 312, 313, 314,	331
perpetual ....	311
reserves ....	311
residential lots ....	311
occupation of ....	312
reservations ....	310, 314
Settlement Schemes	
Government ....	314
Group ....	314, 365
Peel, Thomas ....	3, 4
Soldiers' ....	311, 313, 314
War Service ....	311, 313, 314, 359
Tax ....	111, 271, 276
tenure system ....	572
utilisation ....	331
Lands and Surveys, Department of .... 310, 311,	312, 313, 314
Laterite ....	18, 29
Laundries and dry cleaners ....	432
Law ....	253
Lead, lead ores .... 23, 33, 331, 385, 386, 387,	391, 392, 395
Leases of Crown land— <i>see also</i> Land	
agricultural ....	310, 311
mining ....	311
pastoral .... 311, 312, 313, 314, 331	
perpetual ....	311
reserves ....	311
residential lots ....	311
Leather ....	424
Leave provisions ....	490, 491
Lecturers, university ....	179
Institute of Technology ....	174
Legal profession ....	252
Legal tender ....	290
Legislation	
during 1971	
Commonwealth ....	110
State ....	110
summary ....	572
Legislative	
Assembly .... 9, 100, 103, 107, 108, 109	
Council .... 5, 6, 9, 100, 103, 105, 109, 110, 541	

	<i>Page</i>
Legislature	
Commonwealth ....	101, 108
State ....	100, 103, 108
Lemons ....	340, 341, 353, 354
Leprosarium ....	205
Leprosy ....	201, 202, 205
Lettuce ....	338, 353
Leucoxene ....	386, 389, 390, 530
Ley farming ....	330
Liberal and Country League ....	104
Liberal Party .... 11, 15, 102, 103, 104, 106, 107, 108	
Libraries ....	186
Library Board of Western Australia ....	186
Licensed clubs ....	432
Licences— <i>see also</i> Land	
broadcast listeners' ....	469, 470, 472, 473
broadcasting station ....	469, 470
building ....	284
combined receiving ....	472, 473
dog ....	284
liquor ....	258, 272, 276
motor	
drivers' and riders' ....	260, 276, 452
vehicle ....	260, 276, 284, 285, 452, 526
radio ....	469, 472, 473
revenue from ....	276, 284, 455, 472
taxi ....	273
television ....	469, 470, 472, 473
transport ....	463
Licensing Court of Western Australia ....	254
Lieutenant-Governors ....	101
Life	
expectation of ....	155
insurance ....	297, 524
Government pension schemes ....	287, 288
Limestone ....	18, 26, 33, 386, 395
Linseed, linseed oil ....	349, 350, 357
Liquor licences ....	258, 272, 276
Lithium ....	21, 33, 395
Livestock— <i>see also specific types</i>	
carried on railways ....	448
exports ....	421, 422, 423, 528
imports ....	418, 419, 420
on rural holdings ....	329, 330, 331, 334,
366, 368, 532	
slaughterings ....	338, 339, 364, 365, 369
slaughter levy ....	269
Loan, loans	
bank ....	292, 524
Building Society ....	300
commercial ....	302
Council, Australian ....	265
expenditure	
local government ....	285, 287
State Government ....	279, 521
Fund, General ....	279, 521
housing ....	221, 223, 224, 292, 300
indebtedness	
local government ....	287
State Government ....	265, 281, 521
mortgage ....	302
personal ....	302
raisings ....	281
local government ....	286
Local Courts ....	254
Local government ....	100, 111, 117
areas— <i>see also map inside back</i>	
cover ....	118, 575, 576



	<i>Page</i>
Minimum wage rates ....	485, 487, 488, 538
Mining— <i>see also specific minerals</i>	
accidents in ....	493
census ....	384, 398, 539
definition of, statistical ....	384
development of ....	7, 14, 279, 281, 385, 390, 392, 393, 395
employment ....	384, 385, 396, 499, 500, 501, 502, 505, 558, 560, 568
number of establishments ....	384, 385
production ....	329, 386
royalties ....	276, 311
salaries and wages ....	384, 385
tenures ....	311
value ....	330, 339, 539, 566
added ....	385, 539
Ministers of the Crown ....	101, 103, 104
Ministry, Ministries ....	103, 104, 540
Mitchell, James ....	9, 10, 104
Molybdenum ....	18, 374, 395
Monazite ....	30, 386, 389, 390
Mortality— <i>see</i> Death, deaths	
Mortgage loans ....	302
Motion picture theatres ....	432
Motor, motors	
omnibuses— <i>see</i> Buses	
used in factories ....	399
vehicle, vehicles	
accidents ....	458
at dwellings ....	217, 553
drivers' and riders' licences ....	260, 273, 276, 452
imports ....	418, 419
insurance ....	296, 297, 298
third party ....	273, 276, 296, 298
licences ....	260, 273, 276, 284, 285, 452, 526
parking facilities ....	258, 453
registrations ....	273, 452, 526, 539
retail sales ....	433, 436
usage ....	457
Mountain ranges— <i>see also map inside</i>	
<i>back cover</i> ....	18, 36
Mules operation ....	90
Municipal councils ....	118
Municipalities— <i>see also map inside back cover</i>	
<i>cover</i> ....	118, 132, 284, 286, 287
Murder ....	256
Murdoch University ....	180, 563
Museum, museums ....	35, 188, 283
Mutton, lamb	
exports ....	360, 421, 422, 425, 427, 527
retail prices ....	512
slaughterings ....	364
Myxomatosis ....	90, 195, 374

N

National	
Debt	
Commission ....	265, 281
Sinking Fund ....	265, 281, 282
Fitness Council ....	199
health services ....	200, 241, 268
payments ....	246, 268
Parks Board of Western Australia ....	197, 283
Safety Council of Western Australia ....	260, 262
Welfare Fund ....	232, 241, 245, 267, 522

	<i>Page</i>
Nationalist Party ....	11, 104
Nationality of population ....	127, 545
Native welfare,— <i>see</i> Aboriginal, Aborigines	
Natural	
gas ....	16, 19, 23, 25, 28, 33, 385, 386, 393, 396, 397, 409, 410
increase of population ....	133, 138, 143, 154, 518, 519
regions ....	97, 98
Nectarines ....	340, 341, 355
Neglected children ....	248
Net production ....	337, 399, 536
definition of ....	337
manufacturing ....	399, 536
primary industry ....	330, 337, 535
New dwellings completed ....	227, 231, 537
Nickel ....	14, 16, 22, 23, 31, 32, 33, 386, 392, 393, 395
Niobium ....	395
Note issue ....	290
Notifiable diseases ....	201
Noxious weeds ....	112, 274, 276, 283, 374
Nullarbor Plain ....	17, 18, 28, 30, 34, 56, 60, 99, 358
Nuptial confinements ....	142
Nurseries ....	356
Nursing homes ....	205, 556
benefits ....	241, 246, 522
grants ....	210

O

Oats ....	330, 338, 339, 340, 341, 346, 349, 357, 421, 422, 425, 427, 539
Observatories ....	190
Occupational status of population ....	128, 496, 497, 498, 499, 557
Occupations of the work force ....	503, 560
Occupied dwellings ....	211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 551, 552, 553
Ochre ....	386
Offences, penal ....	255
Office of Titles ....	305
Official publications, list of ....	597
Oil, oils— <i>see also</i> Petrol, petroleum, petroleum products; Whale oil	
bunker ....	427
carried on railways ....	448
crude ....	385, 386, 393, 396, 539
discovery ....	14, 16, 23, 25, 26, 27, 32, 385, 393, 396
excise ....	429
exploration ....	396, 397
exports ....	421, 422, 423, 424, 425, 427
imports ....	418, 419, 420
linseed ....	357
refining ....	330, 399
sandalwood ....	379
search ....	23, 25, 26, 27, 31, 311, 396
ships' stores ....	427
Olives ....	340, 341
Omnibuses— <i>see</i> Buses	
Onion, onions	
area ....	339, 351
production ....	339, 340, 351
retail price ....	512

	<i>Page</i>		<i>Page</i>
Oranges	338, 339, 340, 341, 353, 354	Pensions, pensioners	
Orchards— <i>see also specific fruits</i>	321, 338, 353, 357	age	232, 247, 251, 268, 522, 523, 539, 555
Orchids	572	invalid	232, 233, 251, 268, 522, 523, 539, 555
Ord River	281, 283, 315, 324, 326, 358, 373	medical service	243, 268, 522, 555
Ores— <i>see also specific ores</i>	21, 22, 26, 29, 33, 329, 330, 331, 385, 386, 387, 421, 422, 423, 424, 425, 427, 446, 448, 530	reciprocal arrangements with other countries	237
Output, factory, value of	401, 536	schemes, superannuation	287
Overseas		service	203, 232, 239, 243, 269, 523, 539, 555
air services	461	war	203, 232, 239, 269, 523, 539, 555
cargo, tonnage of	442	widows'	232, 234, 247, 248, 251, 268, 288, 289, 522, 523, 555
representation	116, 541	Personal loans	302
shipping	441, 442	Perth	
Telecommunications Commission	468	City Council	117, 118, 453
trade— <i>see also Exports; Import, imports</i>	412, 415, 416, 417, 418, 420, 421, 422, 424, 425, 426, 427, 531, 539, 565	foundation of	3
encouragement of	412	metropolitan area— <i>see also Urban Perth</i>	483, 484
Overtime	490	Statistical Division	130, 133, 134, 135, 145, 146, 156, 228, 330, 403, 407, 408, 453, 456
Oysters	79	Stock Exchange	306
		Town Trust	117
		Pest control without insecticides	93
		Pesticides	
		effect of	573
		use of	573
		Petrol, petroleum, petroleum products— <i>see also Oil, oils</i>	
		customs	428, 429
		excise	429
		exploration	396, 397
		finance	397
		wells and footage drilled	397
		exports	421, 422, 423, 424, 425, 427
		imports	418, 419, 420
		leases, licences	311
		Pharmaceutical benefits	232, 244, 268, 283, 522
		Phillip, Arthur	2
		Phosphate, rock— <i>see also Fertilisers, artificial</i>	357, 395
		Physical features	16, 97
		Pickles, sauces	409
		Pig-iron	379, 385, 529
		Pigs	334, 339, 367, 368, 369, 448, 532, 539
		Pines	281, 378
		Plant and machinery, factory	399
		Plantations	323, 355, 378
		Plaster	407, 409
		Plums	338, 340, 341, 355
		Plywood	379, 421, 422, 423
		Pneumonia, deaths from	148, 151
		Poisonous plants	573
		Police	113, 259, 277, 285, 452, 453, 455
		and Citizens' Youth Clubs	260
		Policies, life insurance	297, 524
		Poliomyelitis	201, 522
		Political parties	102, 103, 104
		Australian Labor Party	15, 102, 106, 107, 108
		Country Party	15, 102, 103, 104, 106, 107, 108
		Labour	10, 15, 102, 103, 104, 106, 107, 108
		Liberal and Country League	104
		Liberal Party	15, 102, 103, 104, 106, 107, 108
		Nationalist Party	11, 104

## P

Paint, paints	409, 418, 419
Paper, paper products	
exports	421, 422
factories	403, 404, 405, 406
imports	418, 419, 420
Parents and Citizens' Associations	167
Parks and reserves	197, 284
Parliament, Parliaments	
Commonwealth	101, 108, 110
State	100, 103, 110, 540
Parliamentary	
procedure and administrative	
procedure	572
Superannuation Fund	112, 288
Parole Board	261
Parsnips	352
Passengers carried	
ferries	460
omnibuses	457
railways	447
railways road services	447, 457
Pastoral— <i>see also Cattle; Grazing; Sheep, lambs; Wool</i>	192, 193, 312, 314, 357, 371, 535, 539
Appraisement Board	310
areas, definition of	357
industry	329, 334, 338, 339, 357, 535
leases	311, 312, 313, 314, 331, 357, 365, 373
Pasture	192, 193, 321, 331, 339, 348, 357, 365, 373
seed	349, 539
Paterson Plan	365
Patients in hospitals	204, 206
Pay-roll tax	112, 269, 274, 489, 504
Peaches	340, 341, 355, 512
Pearls, pearl-shell	10, 78, 79, 383
culture	331, 383
exports	383, 529
production	331, 383
Pears	338, 340, 341, 353, 354, 512
Peas	330, 340, 341, 348, 349, 352
Peel, Thomas	3, 4
Penal offences	255

	<i>Page</i>		<i>Page</i>
Pollard	408, 409	Premier, Premiers	9, 103, 104
Pome fruits— <i>see</i> Apple, apples; Pears		Premiums, insurance	296, 297, 524
Population	3, 5, 8, 13, 122, 518, 539, 543, 547, 563, 567, 570	Pre-school education	171, 172
Aboriginal	122, 123, 135, 136, 137	Price indexes— <i>see</i> Index numbers, export price, retail price, wholesale price	
age distribution	125, 544	Prices, retail	512
birthplace	127, 545	Primary	
censuses— <i>see also</i> Censuses of		producers, assistance to	
population	122, 123, 124, 495, 503, 543, 544, 545, 546, 548, 549, 550, 560, 561	financial	291, 343, 350, 365, 370
density	122, 130, 134	technical	365, 371
estimates	137, 518, 539	production	329, 331, 339, 493, 499, 500, 501, 502, 532, 533, 534, 535
geographical distribution	130	schools— <i>see also</i> Education	161, 164, 165, 166, 171
increase	122, 129, 133, 518, 519, 539	Prime Minister of Australia	266
industry of	128, 499, 500, 501, 502, 505, 558	Prisons, prisoners	112, 260
intercensal increases	129, 133, 545, 546, 547	Private	
interstate comparison	123, 129, 135, 136, 139, 539	dwelling	211, 218, 551, 552, 553, 554
local government areas	573	finance	290, 524
marital status	128, 497, 498, 546	hospitals	205
masculinity	123, 124, 133	omnibus services	457
mean	137, 518	railways	446, 449, 525
metropolitan	134, 330, 548, 549	Privy Council	253
migratory	129, 130, 131, 132, 133, 518	Probate duties	271, 276
nationality	127, 545	Probation and parole service	112, 261
north of 26°S. latitude	134	Production, value of	
occupational status of	128, 496, 497, 498, 499, 557	manufacturing	401, 536
occupations of	128, 503, 560	primary	330, 337, 339
Overseas arrivals and departures	573	Professors, University	179
Perth Statistical Division	130, 132, 133, 134, 135, 330, 518	Proportional representation	102
rates of increase	122, 129, 133, 518, 519, 539	Proteaceae family	57
religion	128, 546	Provident Account	287
reproduction	145	Public	
rural	130, 131, 547, 549	debt	265, 281, 521
South-West Land Division	134	examinations— <i>see</i> Education	
Statistical Divisions	130, 132, 134, 135, 574	finance	265, 520
urban	130, 131, 547, 549	child welfare	249
centres	130, 131, 547, 549	customs and excise	269, 428, 525
work force	495, 557	education	181, 183, 184, 277, 278, 281
Pork		hospitals	204, 283
exports	367, 421, 422, 427, 527	posts, telegraphs and telephones	466
retail prices	512	social service benefits	233, 268, 522
Ports	391, 427, 440, 441, 444	transport services	275, 277, 279, 280, 446, 447, 521, 525
administration	444, 445	vehicle licences	276, 284, 285, 453
cargo, tonnages	441, 442, 445	health	120, 200, 277
shipping	440, 441	holidays	490
trade	427, 428, 440, 441	hospitals	203, 278, 280, 283
Postmaster-General's Department	465, 469, 470	instruction— <i>see</i> Education	
Posts, telegraphs, telephones	465	safety	260, 262
Potash	18, 30, 393	transport services	446, 447, 456, 457, 521, 525
Potato, potatoes		Trust Office	305
area	323, 339, 351	Trustee	
exports	421, 422, 423, 425, 427, 528	Common Fund	283
Marketing Board, Western Australian	351	Works Department	572
production	331, 338, 339, 340, 351	Publications, list of	597
retail price	512	Pumpkins	352
Poultry	330, 334, 337, 338, 339, 369, 535	Pyrates— <i>see also</i> Iron	386, 393
Power, electric— <i>see also</i> Electricity;			
Hydro-electric power			
generation and distribution	409, 521		
Prawns	81, 331, 338, 380, 381		

## Q

Quarantine	200
Quota, wheat	344

	Page		Page
<b>R</b>		<b>Road, roads—continued</b>	
Rabbits	68, 69, 195, 374, 376	districts— <i>see also</i> Shires	118
Racing, State revenue from	276	finance	267, 283, 284, 452, 455
Radio broadcasting services	167, 469	main	451, 455
Radiocommunication	468	maintenance contribution	273, 276
Rail standardisation	450	safety	260, 262
Railways— <i>see also map inside back cover</i>	10,	traffic	
112, 280, 283, 391, 446, 462, 525		accidents	458, 539
iron-ore	446, 449	control	260, 452
rolling stock	448	transport	447, 456, 463
Rainfall— <i>see also map inside back cover</i>	37,	employment	447, 457, 500, 505, 559, 568
49, 50, 51, 98, 134, 324		vehicles	447, 453, 456, 457, 463, 526
Raisins	330, 356	Trust Fund, Central	284
Rapeseed	331	Rock lobsters (crayfish)	65, 66, 195, 330, 331, 380
Rates		exports	380, 421, 422, 425, 427, 529
local government	120, 284, 285	production	330, 331, 380, 381
of exchange	290	species of	65, 66, 78, 80, 380
Social Service payments	238	Rock phosphate— <i>see</i> Phosphate, rock	
Readers, University	179	Rocks	18, 19, 31
Redemptions, Loan Raisings and	281	Rolling stock, railways	448
Refining		Rooms, number of in dwellings	214, 551, 552
gold	386	Rottnef Island Board	198
oil	399	Route mileage— <i>see</i> Mileage	
Refrigerating machines and appliances,		Royal	
imports of	418, 419	Commission, Commissions	177, 374
Regions, natural	97, 98	Flying Doctor Service	167, 203, 461, 463, 469
Registration, apprenticeships	479, 480	Rubber, rubber goods	
Registration Office, Companies	306	exports	421, 422, 423, 424
Rehabilitation Service, Commonwealth	234, 268	Rubidium	395
Relief payments, State	247, 251	Rule of law	252
Religion of population	128, 546	Rural	
Religious and civil marriages	158	and Industries Bank of Western	
Rent, rents of dwellings	216, 509	Australia	283, 291, 292, 294, 295
Repatriation services	203, 232, 239, 523, 553	holdings	331, 332, 333, 334, 339, 345, 357, 359, 364, 366, 368, 539
Representation		industry	329, 500, 532
overseas and interstate	116, 541	population	130, 131, 547, 549
Parliamentary	100, 102, 103, 105, 106, 107	seasonal calendar	340
Vice-Regal	101	Rutaceae family	572
Representatives, House of	102, 108	Rutile	30, 386, 389, 390
Reproduction rates	145	Rye	340, 341, 348, 349
Reptiles	74		
Research		<b>S</b>	
agricultural	191, 192, 324, 343, 371	Safflower	324
financial assistance for	184, 563	Salaries and wages— <i>see also</i> Basic wage,	
Organization, Commonwealth Scien-		wages ; Total wage; Equal pay	483, 538
tific and Industrial	193, 324, 373, 382	Child health services	207
Reserves of land	111, 390	factories	402, 404, 411, 536
Reservoirs— <i>see also</i> Water	315, 316	hospitals	204, 206
Restaurants and licensed hotels	432	minimum rates	485, 487, 488, 538
Retail		mining	384, 385
Establishments		Postmaster-General's Department	466
Census of	384, 400, 430	Sales	
Survey of	436	Tax	269
price, prices	515	wholesale	434, 435
index numbers	509, 511, 537	Salt	17, 30, 33, 331, 377, 394, 421, 422
sales, value of	432, 433, 436, 437	bush	30
instalment credit for	301, 302, 304	lakes	17, 30, 66, 98, 394
trade, employment in	432, 505, 558	Sandalwood	376
Rice	324, 512	Sandstone	21, 23, 25, 26, 27, 395
Richter scale	32	Satellite, satellites	51
Rivers	17, 316, 323, 325, 358	Sauce— <i>see</i> Pickles, sauces	
Road, roads— <i>see also map inside back cover</i>	451		
beef cattle	283		
boards	118		
Commonwealth aid	267, 283, 455		

	Page
Savings banks— <i>see</i> Bank, banks	
Sawmills, sawmilling ....	330, 379, 408
Scale fish ....	338, 380, 381
Scholarships, bursaries ....	161, 177, 182
Schools— <i>see</i> Education	
Scientific institutions ....	190, 324, 371, 562
Seasonal calendar, rural ....	340
Secession referendum ....	12
Secondary	
industry ....	398
production— <i>see</i> Factory, factories;	
Manufacturing	
schools— <i>see</i> Education	
Sedimentary basins ....	19, 23, 25
Seismicity of Western Australia ....	32
Semi-precious stones ....	386
Senate	
Commonwealth Parliament ....	102, 108
University of Western Australia ....	177
Sequestration orders ....	304
Service, services	
advisory, agricultural ....	373
broadcasting ....	167, 469, 470
dental, school ....	203
Flying Doctor, Royal ....	167, 203, 461, 463, 469
health	
child ....	202
national ....	200, 232, 241, 268
hospital ....	203
library ....	187
medical ....	200
pensioner ....	244, 268
school ....	203
pensions ....	203, 232, 239, 269, 523, 539, 555
posts, telegraphs, and telephones ....	465
radiocommunication ....	468
rehabilitation, Commonwealth ....	234, 268
repatriation ....	203, 232, 238, 523
reservoirs ....	315, 316
social ....	232, 246, 268, 269, 522, 523
soil conservation ....	371, 374
statistical ....	111
television ....	167, 469
transport ....	440, 456, 461, 525
veterinary ....	371
war, land settlement....	311, 313, 314, 359
Settlement— <i>see</i> Land	
Sewerage schemes ....	327
Shares and stocks traded ....	307
Sheep, lambs	
breeds ....	360
carried on railways ....	448
exports ....	421, 422, 423, 528
numbers ....	329, 330, 331, 339, 358, 369, 532, 539
research ....	192, 374
shorn ....	360
size of flocks ....	334, 359
skins exported ....	421, 422, 423, 424, 425, 427
slaughtered ....	339, 364
Sheltered	
employment ....	208, 523
workshops grant ....	208
Shipping ....	441, 499, 505, 525
cargo ....	441, 442, 445

	Page
Ships' stores ....	427, 531
Shires— <i>see also map inside back cover</i> ....	118
Shoes— <i>see</i> Boots and shoes	
Sickness benefits ....	232, 235, 248, 251, 268, 299, 522, 555
Sillimanite ....	395
Silver, silver-lead ores ....	33, 331, 387, 392, 530
bullion ....	421, 422
Sinking funds ....	265, 267, 281, 287, 520, 521
Skins and hides ....	376, 421, 422, 423, 424, 425, 427, 529
Slaughterings, livestock ....	338, 339, 364, 365, 369
Sleepers, railway ....	379, 408, 409, 421, 422, 423, 427
Slippers ....	409
Snakes ....	74
Snow ....	51
Soap, soap substitutes	
imports ....	418, 419
production ....	409
retail price ....	512
Social services ....	232, 246, 268, 269, 522, 523
Softwoods— <i>see</i> Pines	
Soil, soils ....	16, 29, 56, 60, 193, 196, 224, 371, 374
conservation ....	371, 374, 376, 378
types ....	29, 60, 357
Soldiers' Settlement Scheme ....	311, 313, 314
Sorghum ....	324, 325, 348, 349
South-West Land Division ....	134, 483
Spinifex ....	30, 60, 62, 98
Spirits	
beverage— <i>see</i> Alcoholic beverages	
Spodumene ....	395
Sporting organisations ....	573
Stamp duties ....	271, 276
Standardised death rates ....	147
State	
basic wage ....	483, 484, 485
batteries ....	192
Cabinet ....	101, 103, 104
Court of Arbitration ....	475, 490
education system ....	161
Electricity Commission ....	112, 280, 283, 403, 409, 410
Government Insurance Office ....	279, 296
Housing Commission ....	220, 280, 283
Library of Western Australia ....	186
Licensing Court ....	254
relief payments ....	247, 251
taxation ....	271, 284
States, Australian....	129, 135, 136, 139, 220, 231, 339, 369, 402, 437
Statistical districts ....	130
Statistical Divisions— <i>see also map inside back cover</i> ....	130, 132, 133, 357
areas of ....	130, 135
components of ....	130
dwellings in ....	219, 228
factories in ....	403
industries in ....	330
population in ....	130, 132, 135, 574
roads in ....	452
Statistical summary from 1829 ....	517
Steel ....	390, 409, 421, 422, 424, 451
Stevedoring	
employment ....	505
industry charge ....	269
Stillbirths ....	140, 141, 152

	<i>Page</i>		<i>Page</i>
Stirling, James	2, 5	Third Party (Motor Vehicle) Insurance	276, 296, 298
Stock Exchange Ltd., The Perth	306	Thorium	395
Stone	18, 19, 33, 34, 386, 395	Thunderstorms	47
construction materials	395	Tiles	407
fruits— <i>see also specific fruits</i>	330, 340, 341, 353, 355, 357	Timber— <i>see also</i> Forest, forests; Hard-woods; Jarrah; Karri; Pines; Ply-wood; Sandalwood; Sawmills, saw-milling; Tuart; Wandoo	
Storms	37, 47, 52	carried on railways	446, 448
Street lighting	286	exports	376, 378, 421, 422, 423, 424, 425, 427, 529
Student children	161, 162, 164, 232, 523, 556	production	379, 408, 536, 539
Students— <i>see</i> Education		railways	446
Subterranean clover	192, 348, 349, 359, 365, 374	reserves	376
Succession duty	271, 276	species	61, 99, 376, 378
Sudax	349	Tin, tin ore	21, 33, 331, 386, 394, 421, 422, 423, 425, 530
Sugar		Titanium oxide	321, 330
cane	324	Titles, Office of	305
retail price	512	Tobacco	
Suicides	148, 149	customs and excise	429
Sulphur	393	imports	418, 419, 420
Sulphuric acid	393	Tomatoes	323, 330, 338, 340, 341, 351
Sultanas	330, 356	Topography	16, 36, 97, 98, 311
Summary Relief Court	247, 253, 254	Tornadoes	573
Sunshine, periods of	49	Total wage....	483, 485
Superannuation		Totalisator Agency Board	272, 276, 309
contributors	288, 289	Tourist	
Fund, Parliamentary	112, 288	Bureau	117
schemes	287	Development Authority	281
Superphosphate— <i>see</i> Fertilisers, artificial		Fund	283
Supreme Court		Town Planning	
Federal	253	Board	227
of Western Australia	116, 252, 253	Commissioner	227
Swans	72	Towns— <i>see also map inside back cover</i> ....	118, 130
Syphilis	202	Trachoma	202
<b>T</b>			
Talc	386	Tractors— <i>see also</i> Agricultural....	333, 398, 407, 418, 419, 421, 422, 423, 437
Tallow	409, 421, 422	Trade	
Tannin	378	agreements	412
Tannin bark— <i>see also</i> Bark	378	classification of commodities	414
Tantalum ores	21, 33, 331	constitutional provisions and legis-lation	412
Tariff	412	historical summary of	573
Board	412	interstate and overseas	412, 415, 416, 417, 418, 421, 422, 426, 427, 428, 531
customs	412, 428	retail, wholesale, employment in	432, 434, 505, 558
Taxation	111, 112, 269, 332, 343, 359, 520	unions	477, 539
Taxi-cars	273, 460, 463	Trades and Labor Council of Western Australia	477, 483, 491
Control Board	273, 463	Traffic	
Tea	420, 512	accidents, road	458
Teachers— <i>see</i> Education		Act	112, 256, 257, 258, 284, 285, 452, 453, 455, 456
Technical education— <i>see</i> Education		Area, Metropolitan	285, 452, 453, 455, 458, 463, 464
Telecommunications Commission, Over-seas	468	control, road	260, 452
Telegraph, telegraphy— <i>see</i> Posts, tele-graphs, telephones		fees	276, 284, 285
Television	167, 469	offences	256, 257, 258
Temperature	43, 49, 51	passenger ferry	460
Tertiary Education Commission— <i>see</i> Education		rail	447, 449, 525
Tetanus	201	road	260, 447, 451
Textile, textiles			
factories	403, 404, 405, 406		
imports	418, 419, 420		
Third Party Claims Tribunal	254, 255		

	Page
Training, apprentices .....	478
Transport— <i>see also</i> Air transport; Buses; Employment; Ferries; Motor, motors; Railways; Road, roads; Shipping; Tramways; Trolley-buses .....	440, 499, 500, 501, 502, 505, 521, 525
Advisory Council .....	462
Board, Eastern Goldfields .....	457
Commissioner of .....	273, 463
co-ordination .....	462
Director General of .....	462
services, municipal .....	456, 457
Trust, Metropolitan (Perth) Passen- ger .....	15, 277, 280, 456, 463
Trapping .....	338, 339, 376, 535
Tree species .....	61, 99, 376, 378
Tremors .....	32
Trolley-buses .....	456, 457
Tropical	
agriculture .....	323, 331, 373
cyclones .....	571
Trust funds .....	269, 274, 282, 284
Trust Office, Public .....	305
Tuart— <i>see also</i> Hardwoods .....	61, 376
Tuberculosis	
allowances— <i>see also</i> War and service pensions .....	202, 232, 244, 246, 268, 522, 555
campaign .....	202, 244, 268, 522
cases notified .....	201
deaths from .....	147
hospital .....	204
Tungsten ores .....	33, 395
Turnips .....	352
Typhoid fever .....	201

## U

Unemployment .....	506, 557, 558, 559, 561, 570
rates .....	506, 555
relief .....	232, 235, 248, 249, 251, 268, 507, 522, 539
Unincorporated area .....	118
Unions .....	477, 483
United Kingdom	
representation in .....	117
trade with .....	416, 417, 420, 424, 425
Universities	
Commission, Australian .....	182
financial assistance to .....	178, 181, 182, 184, 267, 277, 278, 281
University	
degrees .....	176, 179
Murdoch .....	180, 563
of Western Australia— <i>see</i> Education	
principal benefactions .....	573
Unoccupied dwellings .....	211, 213, 218, 220, 551, 554
Uranium .....	395
Urban	
centres .....	130, 131, 547, 549
Perth— <i>see also</i> Perth metropolitan area .....	130, 134
population .....	130, 131, 547, 549

## V

Valuation for rating, local government	120
Value of production	
added .....	385, 401, 402, 406, 431, 432, 434
manufacturing .....	401, 536
primary .....	330, 337, 338, 339, 535
Vanadium .....	395
Veal— <i>see</i> Beef	
Vegetables— <i>see also</i> specific vegetables	
fresh .....	
exports .....	351, 421, 422, 423, 424, 425, 427, 528
imports .....	351
production .....	323, 330, 331, 350
Vegetation .....	30, 55, 64, 98
provinces .....	59
Vehicles, motor— <i>see</i> Motor, motors	
Veneers, plywood— <i>see</i> Plywood	
Veneral diseases .....	202
Vermiculite .....	395
Vermin .....	69, 73, 112, 273, 276, 283, 374
Boards .....	284
bonus, bounty .....	83, 284
taxation .....	273, 276
Vetches .....	348, 349
Vice-Regal representation .....	101
Vine fruits .....	330, 338, 339, 356
dried— <i>see also</i> Currants; Raisins; Sultanas .....	330, 356
grapes	
area .....	356
production .....	330, 356
Vinegar .....	409
Vineyards .....	334, 339, 356
Vital statistics .....	140, 519
Viticultural research .....	373
Vocational guidance .....	167, 168, 170
Voting— <i>see</i> Electoral provisions	

## W

Wage and salary earners, number of .....	496, 497, 498, 499, 539
Wages— <i>see</i> Salaries and wages	
Wandoo— <i>see also</i> Hardwoods .....	61, 99, 376
War	
pensions .....	203, 232, 239, 269, 523, 539, 555
Service	
Homes .....	224, 283
Land Settlement	
Board .....	332
Scheme .....	311, 313, 314, 359
Water	
artesian .....	19, 23, 27, 33, 98, 316, 317, 321
Boards .....	284, 286, 287, 315, 320
conservation .....	315
resources, investigation and measure- ment .....	326
Supply .....	8, 98, 275, 277, 279, 280, 284, 312, 315
Commonwealth grants for .....	267, 317, 324
Metropolitan .....	315, 316



# STATISTICAL PUBLICATIONS

Issued by the Deputy Commonwealth Statistician and Government Statistician,  
1-3 St George's Terrace, Perth.

## PRINTED PUBLICATIONS

Title of publication	Latest issue at 31 May 1973	Month of issue	Price	
			Excluding postage	Including postage (a)
WESTERN AUSTRALIAN YEAR BOOK ....	No. 11, 1972	Oct. 1972	\$ 2.00	\$ 2.45(b)
WESTERN AUSTRALIAN POCKET YEAR BOOK (c)....	No. 54, 1972	Sept. 1972	0.20	0.27
QUARTERLY STATISTICAL ABSTRACT ....	March 1973	Apr. 1973	0.20	0.27
STATISTICS OF WESTERN AUSTRALIA (Annual) (d):				
Building and Housing (c) ....	1970-71	Sept. 1972	0.30	0.37
Demography (c) ....	1970	Jan. 1973	0.40	0.52
Finance ....	1970-71	Aug. 1972	0.40	0.47
Labour and Prices ....	1971	Sept. 1972	0.60	0.67
Local Government (c) ....	1970-71	Apr. 1973	0.50	0.57
Non-Rural Primary Industries ....	1970-71	Apr. 1973	0.20	0.27
Rural Industries (c) ....	1970-71	Mar. 1973	1.10	1.34
Social Statistics (c) ....	1971	Feb. 1973	0.30	0.42
Summary from 1829 ....	1829-1971	Sept. 1972	0.20	0.27
Trade (overseas and interstate) ....	1971-72	Mar. 1973	1.40	1.75(e)
Transport and Communication ....	1969-70 and 1970-71	Mar. 1973	0.30	0.37
ABSTRACT OF STATISTICS OF LOCAL GOVERNMENT AREAS (Annual) (c) ....	1973	Feb. 1973	0.50	0.68

(a) Within Australia and to Christmas Island, Cocos Island, Lord Howe Island, Norfolk Island, Nauru and Papua-New Guinea.  
(b) Within 30 miles of the General Post Office, Perth. Elsewhere in Western Australia, postage is 55 cents; to other States and Territories, 61 cents. (c) Includes statistics for individual local government areas. (d) Replaces the *Statistical Register of Western Australia* for 1968-69 and subsequent years. (e) Within 30 miles of the General Post Office, Perth. Elsewhere in Western Australia and to Cocos Island and Christmas Island, postage is 45 cents; to South Australia and Northern Territory, 65 cents; to Victoria, 75 cents; elsewhere in Australia, etc., 85 cents.

## MIMEOGRAPHED PUBLICATIONS

(Available free of charge on application)

Subject	Frequency of issue	Latest issue at 31 May 1973	Month of issue
ACCIDENTS—			
Industrial Accidents ....	Annually	1971-72	Dec. 1972
Road Traffic Accidents involving Casualties ....	Quarterly	Dec. qr 1972	Apr. 1973
Road Traffic Accidents involving Casualties (a) ....	Annually	1971	Aug. 1972
BUILDING—			
Building Operations (a) ....	Quarterly	Dec. qr 1972	Mar. 1973
Building Permits and Approvals (a) ....	Monthly	Apr. 1973	May 1973
Number of New Houses and Flats (preliminary estimates) ....	Quarterly	Mar. qr 1973	May 1973
EMPLOYMENT—			
Wage and Salary Earners in Civilian Employment ....	Annually	June 1966 to June 1972	Sept. 1972
FINANCE—			
Fire, Marine and General Insurance Statistics ....	Annually	1971-72	Jan. 1973
Local Government Finance Statistics ....	Annually	1970-71	Oct. 1972
Local Government Revenue and Expenditure: Budget Estimates (a) ....	Annually	1972-73	Nov. 1972
MOTOR VEHICLES—			
Motor Vehicle Registrations ....	Monthly	Apr. 1973	May 1973
Motor Vehicle Registrations (a) ....	Annually	1969	Aug. 1970
POPULATION AND VITAL STATISTICS—			
Divorce ....	Annually	1971	June 1972
Hospital In-patient Statistics ....	Annually	1971	Aug. 1972
Intercensal Changes in Population (a) ....	Irregular	1961-1966	June 1968
Population and Occupied Dwellings: Censuses, 1911 to 1966 (a) ....	Irregular	1911 to 1966	Feb. 1968
Population, Dwellings and Vital Statistics (Local Government Areas and Statistical Divisions) (a) ....	Annually	1971 and 1972	Jan. 1973
Projections of the Population ....	Irregular	1967 to 1976	Feb. 1969

(a) Includes statistics for individual local government areas.

continued on next page

## STATISTICAL PUBLICATIONS—continued

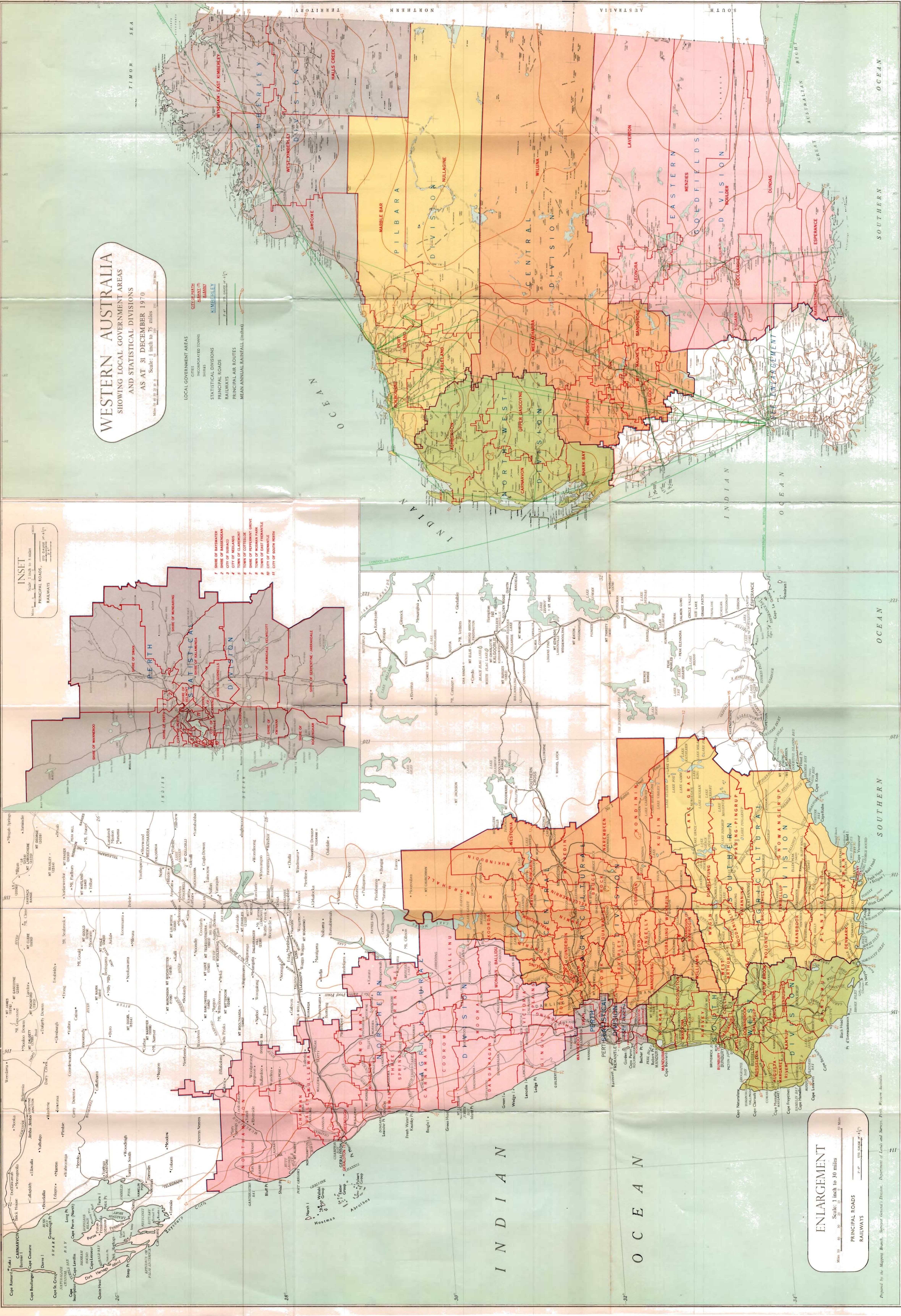
## MIMEOGRAPHED PUBLICATIONS—continued

Subject	Frequency of issue	Latest issue at 31 May 1973	Month of issue
<b>PRIMARY PRODUCTION—</b>			
Agricultural and Pastoral Statistics (general summary) ....	Annually	1971-72	Nov. 1972
Agricultural Census: Principal Statistics (preliminary statement) ....	Annually	1972-73	May 1973
Apples and Pears in Cool Stores ....	Monthly	Apr. 1973	May 1973
Artificial Fertiliser Used on Rural Holdings (a) ....	Annually	1971-72	Dec. 1972
Bee Keeping Statistics ....	Annually	1971-72	Nov. 1972
Catch of Fish and Crustaceans ....	Monthly	Aug. 1972	Mar. 1973
Cattle and Pigs (a) ....	Annually	1972	Sept. 1972
Cereal Crop Forecast ....	Annually	1972-73	Oct. 1972
Chicks Hatched and Poultry Slaughtered ....	Monthly	Mar. 1973	May 1973
Ewe Matings for Lambing ....	Triennially	1969 and 1970	Feb. 1971
Fisheries ....	Annually	1970-71	Aug. 1972
Fruit (a) ....	Annually	1971-72	Jan. 1973
Grain and Other Crops and Cereal Varieties (a) ....	Annually	1971-72	Dec. 1972
Grain and Seed Harvesters on Rural Holdings (a) ....	Triennially	1970	Mar. 1971
Hay, Green Feed and Silage (a) ....	Annually	1971-72	Jan. 1973
Irrigation (a) ....	Annually	1971-72	Jan. 1973
Livestock Slaughtered and Meat Produced ....	Annually	1971-72	Dec. 1972
Machinery on Rural Holdings (a) ....	Annually	1972	Dec. 1972
Mineral Exploration ....	Annually	1971-72	Apr. 1973
Nursery and Flower Production Statistics (†) ....	Annually	1971-72	Feb. 1973
Pasture Seed (a) ....	Annually	1971-72	Jan. 1973
Rock Lobsters Held in Cold Stores and Exported ....	Monthly	Apr. 1973	May 1973
Rural Land Utilisation (a) ....	Annually	1971-72	Jan. 1973
Sheep, Lambing and Wool Clip (a) ....	Annually	1971-72	Sept. 1972
Tractors on Rural Holdings (a) ....	Triennially	1969	Mar. 1970
Value of Primary Production (excluding Mining and Quarrying) (preliminary statement) ....	Annually	1971-72	Dec. 1972
Vegetables (a) ....	Annually	1971-72	Jan. 1973
Wheat for Grain (a) ....	Annually	1971-72	Aug. 1972
<b>SECONDARY PRODUCTION—</b>			
Economic Censuses—Manufacturing Establishments and Electricity and Gas Establishments : Summary of Operations by Industry Class (†) ....	Annually	1968-69 and 1969-70	Jan. 1973
<b>TRADE (EXTERNAL)—</b>			
External Trade (Overseas and Interstate) ....	Annually	1970-71	Dec. 1971
Interstate Trade ....	Annually	1971-72	Oct. 1972
Quarterly Summary of Overseas Trade Statistics ....	Quarterly	To Dec. 1972	Apr. 1973
<b>TRADE (INTERNAL)—</b>			
Wholesale Sales and Stocks of Wine and Brandy ....	Annually	1970-71 and 1971-72	Oct. 1972
<b>GENERAL—</b>			
Monthly Statistical Summary ....	Monthly	May 1973	May 1973

(a) Includes statistics for individual local government areas.

(†) New issue.

NOTE. In addition to the preceding publications, a number of bulletins which deal exclusively with this State are produced by the Commonwealth Statistician, Canberra who also issues many publications which contain particulars for Western Australia as a component of Australian totals. A complete list of all publications currently issued by the Central and the various State Offices of this Bureau appears in 'Publications of the Commonwealth Bureau of Census and Statistics' issued by the Commonwealth Statistician, copies of which are available free of charge from the Western Australian Office at the address shown on page 597



**WESTERN AUSTRALIA**  
SHOWING LOCAL GOVERNMENT AREAS  
AND STATISTICAL DIVISIONS  
AS AT 31 DECEMBER 1970  
Scale: 1 inch to 75 miles  
Main map: 1 inch to 75 miles

- LOCAL GOVERNMENT AREAS**  
CITIES  
INCORPORATED TOWNS  
SHIRES  
STATISTICAL DIVISIONS  
PRINCIPAL ROADS  
RAILWAYS  
MEAN ANNUAL RAINFALL (inches)
- INSET**  
Scale: 1 inch to 5 miles  
PRINCIPAL ROADS  
RAILWAYS

**ENLARGEMENT**  
Scale: 1 inch to 30 miles  
PRINCIPAL ROADS  
RAILWAYS